DOCUMENT RESUME

ED 256 581 SE 045 513

TITLE	Comprehensive Instructional Management System (CIMS). A Cyclical Mathematics Curriculum. Part 1--Teacher. Experimental. Level 2.
INSTITUTION	New York City Board of Education, Brooklyn, N.Y. Div. of Curriculum and Instruction.
REPORT NO	Curric-00-6002-21; ISBN-0-88315-519-2
PUB DATE	83
NOTE	269p.; For part 2 of teacher's manual see SE 045 514; for student workbook, see SE 045 511-512. For the entire series, see SE 045 503-534. All material in the student manuals is duplicated in the teacher manuals.
AVAILABLE FROM	New York City Board of Education, Curriculum Production Unit, Room 617, 131 Livingston St., Brooklyn, NY 11202.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01/PC11 Plus Postage.
DESCRIPTORS	Computation; *Elementary School Mathematics; *Grade 2; Instructional Materials; Learning Activities; Mathematics Curriculum; *Mathematics Instruction; Measurement; Number Concepts; Objectives; Primary Education; *Teaching Methods; Workbooks
IDENTIFIERS	Comprehensive Instructional Management System

ABSTRACT

This is the teacher's manual to accompany part 1 of the workbook for grade 2 pupils in the Comprehensive Instructional Management System, a teacher-designed unified mathematics curriculum for kindergarten through grade 7. It is composed of a curriculum, a testing component, and a computer-managed reporting system. The curriculum is organized into modules of similar skills or understandings from 14 topics. Each module has: a suggested period of duration for student mastery; a listing of new skills to be mastered by the student in the form of performance objectives; a section devoted to vocabulary, terms, and symbols; getting-started activities on prerequisite skills in preparation for undertaking new objectives; strategies for teaching the new skills; and student activities for providing reinforcement for the newly learned objective. After the sequence of modules and content by topic are displayed, teaching suggestions for 66 modules on 77 performance objectives are given. The content is from the topics of: numbers and numeration; addition; subtraction; multiplication; division; fractions; geometry; measurement; algebraic concepts; graphs, probability, and statistics; and problem solving, plus review. Pages from the student's workbook are interspersed with the suggested activities. (MNS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

EXPERIMENTAL

ED256581

CIMS

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
✓ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or poli

COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

A Cyclical Mathematics Curriculum

PART 1—TEACHER

SE 045 513

NEW YORK CITY BOARD OF EDUCATION
OFFICE OF CURRICULUM DEVELOPMENT AND SUPPORT
DIVISION OF CURRICULUM & INSTRUCTION

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Dr. Flug
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

00-6002-21

NEW YORK CITY BOARD OF EDUCATION

James F. Regan, President
Miguel O. Martinez, Vice President

Amelia Ashe
Joseph G. Barkan
Stephen R. Franse
Irene Impellizzeri
Marjorie A. Lewis

Nathan Quinones, Chancellor

Charlotte Frank, Executive Director
Division of Curriculum and Instruction

COPYRIGHT 1983
BY THE BOARD OF EDUCATION OF THE CITY OF NEW YORK

Application for permission to reprint any section of this material should be made to the Chancellor, 110 Livingston Street, Brooklyn, N.Y. 11201. Reprint of any section of this material should carry the line, "Reprinted from CIMS - Comprehensive Instructional Management System, A Cyclical Mathematics Curriculum by permission of the Board of Education of the City of New York."

BEST COPY AVAILABLE

Original cover design by Marvin Schneider

It is the policy of the Board of Education not to discriminate on the basis of race, creed, national origin, age, handicapping condition, or sex in its educational programs, activities, and employment policies, as required by law. Inquiries regarding compliance with appropriate laws may be directed to Mr. Ralph Edwards, Deputy Administrator, Office of Pupil Personnel Services, 362 Schermerhorn Street, Brooklyn, New York 11217; Ms. Lynette V. Tucker, Director, Office of Equal Opportunity, 110 Livingston Street, Brooklyn, New York 11201; or to Mr. Charles Tejada, Director, Office for Civil Rights, Department of Education, 26 Federal Plaza, Room 33-130, New York, New York 10278.

ISBN No. 0-88315-519-2

Curric. No. 00-6002-21

Copies of this publication may be purchased from: the Curriculum Production Unit, Room 617, 131 Livingston Street, Brooklyn, N.Y. 11201. Checks should be made payable to "Publication Sales."
See catalogue for price.

BEST COPY AVAILABLE

FOREWORD

The Comprehensive Instructional Management System (CIMS) is a unified mathematics curriculum for grades K-7. The curriculum is cyclical in design, and reflects the most recent New York City and New York State guidelines.

Utilizing the experience of our system's teachers, we have developed a teacher-designed curriculum that includes a rich selection of classroom-tested successful mathematics activities. The major goal of the CIMS mathematics project is to provide the classroom teacher with a well-structured, objective-based curriculum. All objectives are supported by a variety of strategies. Student mastery of these objectives is readily diagnosed through the system's testing component.

The curriculum format is structured to allow the teacher to determine the ability level of the students in the topic under study, and to permit the students to move forward at their individual rates. Each module of instruction provides the teacher with a set of related performance objectives. These objectives are supported by activities which probe and develop the students' readiness to undertake new skills and concepts. Further reinforcement is given to mastery of the objectives through accompanying student workbooks.

It is hoped that this curriculum will not only assist teachers in developing vital mathematics instruction, but will serve to expand and enrich students' mathematics skills.

Charlotte Frank

Charlotte Frank,
Executive Director
Division of Curriculum and Instruction

ACKNOWLEDGMENTS

The Comprehensive Instructional Management System (CIMS) was developed as a project of the Division of Curriculum and Instruction, Charlotte Frank, Executive Director. Dr. Peter Negroni, Community School Superintendent CSD 12; Dr. Harvey Garner, Community School Superintendent CSD 18; Carlos Edwards, Community School Superintendent CSD 23, and Joseph Pacheco, Community School Superintendent CSD 32 supervised the overall development of the CIMS program within their respective districts.

Morris Freedman, Director of the Office of Curriculum Development and Support; Irwin Kaufman, Director of Mathematics; Kenneth Bates, Director of CIMS; Maria DeSalvio, Assistant Director of Mathematics; Arthur Flug and Doreen Genkin, Assistant Directors of CIMS and Gene Menchini, Program Manager, Distributive Systems, Office of Data Processing Coordination provided overall supervision of this project.

Division of Special Education

Overall supervision of curriculum in addressing those students with special needs was coordinated by Edward M. Sermier, Chief Administrator, Division of Special Education.

Allan Dobrin, Office of Chief Administrator; Bebe Bernstein, Administrator, Curriculum Development Unit of the Office of Program Development and Geraldine Silver and Susan Wieder, Special Education Coordinators provided guidance and support in addressing these special needs.

Consultants

The program consultants responsible for reviewing the curriculum for mathematics accuracy were:

Harry Ruderman, Assistant Principal Supervision/Mathematics, Hunter College High School (Retired)
Helene Silverman, Associate Professor, Lehman College

Principal Writers

The principal writers responsible for planning the scope, sequence and engaging in the necessary research in writing of the modules were:

Stephen Rappaport, Assistant Principal I.S. 171K
Sara Jane Bass, CIMS Curriculum Leader
Judith Fein, CIMS Curriculum Leader
Lorraine Wan, CIMS Curriculum Leader
Rochelle Watnick, CIMS Curriculum Leader

CIMS District Curriculum Workshops

Each of the participating CIMS community school districts organized a curriculum workshop to write the various curriculum levels.

Community School District 12

Mary J. Teshara	District Mathematics Coordinator
Valentin Acabeo	C.S. 134X
James F. Gilligan	I.S. 116X
Selma Gunther	C.S. 50X
Betty Anne Jackson	C.S. 47X
Mark Lehrer	I.S. 158X
Jewel R. Moolenaar	I.S. 143X
Marcia Ann Rudnitsky	C.S. 102X
March Dale Stecker	C.S. 47X
Ira K. Victor	C.S. 77X
Leonard Zavlick	C.S. 92X

Community School District 18

Jack Friedman	CSD 18, Director CIMS
Selma Mitlitsky	District Mathematics Coordinator
Eileen Backer	P.S. 135K
Lillian Frechtman	P.S. 279K
Merle Glass	P.S. 219K
Howard Mankes	P.S. 219K
Lillian Pecker	J.H.S. 252K
Virginia Pero	J.H.S. 211K
Carol J. Reale	P.S. 235K
Arlie Solola	J.H.S. 252K
Renee M. Tardi	P.S. 219K

Community School District 23

Wallace Dimson,	District Mathematics Coordinator
Gloria Allen	
Marshall Belson	P.S. 183K
Abraham Butensky	P.S. 165K
Janice Ellenbogen	P.S. 298K
Ruth Fennell	P.S. 298K
Gladys H. Galamison	P.S. 156K
Bruce Landau	P.S. 327K
George McMullen	P.S. 183K
Carmella Murden	J.H.S 275K
Martha Hilinski-Pepe	P.S. 327K
Rochelle Sanders	P.S. 327K
Gary Wexler	P.S. 41K
Priscilla A. Williams	I.S. 271K
Frederick Zwibel	P.S. 184K

Community School District 32

Aurora Larocca,	District Mathematics Coordinator
Pedro J. Colon	J.H.S. 111K
Dorothy A. Conroy	P.S. 116K
Joan Fox	P.S. 116K
Steven Ganzell	I.S. 291K
Akhtar A. Khan	I.S. 291K
Lenore Marie Messina	P.S. 151K
Joanne Narisi	P.S. 299K
George Silverglad	P.S. 274K
Norma Warmund	P.S. 45K
Stephen Elliot Weiss	P.S. 274K
Martin Weissman	P.S. 384K

Citywide Curriculum Developers

Judy Z. Cohen	Corr. Math. N.P.S.	Carmen B. Matthews	CSD 3 J.H.S. 88M
Nancy R. Coleman	CSD 19 Staff Dev.	Edythe Ogin	CSD 19 I.S. 171K
Carl Conetta	Special Ed. Bronx	Joseph A. Porzio	CSD 19 Staff Dev.
Gerri T. Dunne	Corr. Math. N.P.S.	Fred Remer	CSD 6 Math Coord.
Meryl Glass	CSD 22 P.S. 139K	Jon Rothfeld	CSD 19 Staff Dev.
David A. Gold	CSD 19 Staff Dev.	Marvin Schneider	Edward R. Murrow H.S.
Stuart Goldberg	CSD 19 Staff Dev.	Leila Schwartz	Corr. Math. N.P.S.
Michelle Greenberg	CSD 28 P.S. 160Q	Angelina Spero	Corr. Math. N.P.S.
Joyce Jalowski	Corr. Math. N.P.S.	Martin L. Spiro	CSD 19 I.S. 302
Margaret Jordan	Corr. Math. N.P.S.	Bernice Staub	Corr. Math. N.P.S.
Jeffrey Joyce	CSD 15 I.S. 88K	Madeline Sussman	CSD 1 P.S. 142M
Nicholas C. Leo	Corr. Math. N.P.S.	Robert B. Weiss	CSD 28 J.H.S. 190Q
Elaine J. Kaplan	CSD 28 J.H.S. 157Q	Bernice Zuckerman	CSD 19 Staff Dev.
Joan Mahon	CSD 19 Staff Dev.		

Citywide Curriculum Illustrators

Joyce Abramowitz	CSD 26 J.H.S. 158Q	Edward Kissane	Beach Channel H.S.
Amy Appleman	CSD 22 P.S. 194K	Susan M. Seidler	Corr. Math. N.P.S.
Paula J. Blanes	CSD 15 P.S. 39K	Dolores Soldo	Special Ed. Brooklyn
Nina Cucchiari	Special Ed. Bronx	Sandy Susser	Special Ed. Bronx
Charles B. Flisser	Special Ed. Bronx		

Citywide Curriculum Editors

Meryl Feinster	CSD 30 P.S. 171K	Laura J. Lederman	CSD 26 J.H.S. 158Q
Robert Greenman	James Madison H.S.	Mary Newsom-King	CSD 8 J.H.S. 101X
Stephanie Lang-Goldsmith	Special Ed. Queens	Lorraine Wittman	CSD 25 P.S. 169Q

Production Staff

Anne Cohen, Education Analyst
Dorothy Johnson, Office Associate

REVISED

TABLE OF CONTENTS

LEVEL 2

Introduction..... xi

Topic Tab Key..... xiii

Instructional Sequence Description..... xiv

Instructional Sequence..... xv

Content by Topic..... xviii

Table of Symbols..... xxi

Metric Table..... xxii

Equipment Checklist..... xxiii

INTRODUCTION

The Comprehensive Instructional Management System (CIMS) is a teacher-designed educational delivery system composed of a curriculum, a testing component and a computer managed reporting system.

Designed to support mathematics instruction in the classroom, CIMS provides a comprehensive cyclical mathematics curriculum for grades K through 7. Each manual describes the curriculum for a single level or grade. Teacher curriculum developers from elementary, intermediate and senior high schools utilized the most current New York City and New York State guidelines in formulating the curriculum's modules and sequence.

Curriculum Topics

The CIMS mathematics curriculum has been organized into the following 14 topics:

.01 Numbers and Numeration
.02 Addition of Whole Numbers
.03 Subtraction of Whole Numbers
.04 Multiplication of Whole Numbers
.05 Division of Whole numbers
.06 Fractions
.07 Decimals
.08 Integers
.09 Geometry
.10 Measurement
.11 Algebraic Concepts
.12 Graphs, Probability, Statistics
.13 Problem Solving
.14 Review

Modules of Instruction

The CIMS curriculum is organized into modules or groupings of similar skills or understandings. Each module has a suggested period of duration for student mastery, a listing of new skills to be mastered by the student in the form of performance objectives, a section devoted to vocabulary, terms and symbols, getting started activities which serve as prerequisite skills in preparation for undertaking new objectives, strategies for teaching the new skills and student activities for providing reinforcement for the newly learned objective. Note that

the lesson duration is included only as a guideline to the teacher for planning purposes. The actual time required for each module will vary from class to class and from child to child depending on the needs of the students and the teacher's judgment.

Priorities of Performance Objectives

There is an order of priority to be recognized in teaching the content presented in the CIMS NEW YORK CITY MATHEMATICS CURRICULUM. Performance objectives with the greatest priority are so basic that unless the student acquires a satisfactory degree of competency in them, the student cannot progress. Such topics are marked A and mastery by all pupils is essential.

Performance objectives marked B are required to be presented to all students. Mastery is not expected at this time. These objectives will be developed further and reinforced later.

Performance objectives marked C are of special interest. These should be taught to increase positive attitudes towards mathematics.

Summary: A - Mastery of this objective is essential for progress. Opportunities for reinforcement should be provided throughout the school year.

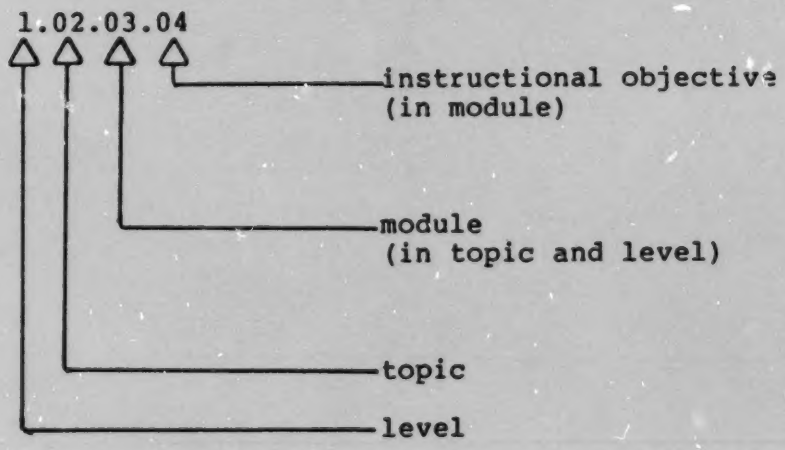
B - These objectives are to be taught to all pupils. Mastery is not essential at this time because the topics will be further developed and reinforced.

C - Objectives of special interest.

Topic Tab Key

01. Numbers and Numeration
02. Addition of Whole Numbers
03. Subtraction of Whole Numbers
04. Multiplication of Whole Numbers
05. Division of Whole Numbers
06. Fractions
07. Decimals
08. Integers
09. Geometry
10. Measurement
11. Algebraic Concepts
12. Graphs, Probability, Statistics
13. Problem Solving
14. Review

Module Coding Key



INSTRUCTIONAL SEQUENCE DESCRIPTION

An instructional sequence is given in list form on the following pages for this level. The sequence has been arranged to reflect what is considered the most effective presentation of the mathematics curriculum. Each module in the list is described by its unit number, module number, title, and page location.

The CIMS tests are integrated within the manual sequence. The test number is located in the first column. Each test is designed to assess priority objectives from the preceding modules. The tests are used to determine student mastery of specific performance objectives within these modules and appear in a multiple choice format. Each performance objective code number preceded by an * indicates that the performance objective is not tested on a CIMS test.

REVISED
INSTRUCTIONAL SEQUENCE - LEVEL 2

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
	1	2.14.01	Recognize and name whole numbers 0 through 100	1
	2	2.01.01	Count hundreds through ten hundred (1000)	2
	3	2.01.02	Read and write standard numerals (100 through 1000)	3
	4	2.01.03	Count by tens and fives to 1000	4
2.01	5	2.01.04	Relation symbols =, <, >	5
	6	2.09.01	Points, lines, line segments, and rays around us	6
	7	2.14.02	Addition and subtraction facts	7
	8	2.11.01	Open sentences	8
	9	2.01.05	Place value through 999	9
	10	2.01.06	Ordinal numbers tenth through thirty-first	10
2.02	11	2.10.01	Time - months and years	11
	12	2.09.02	Explore properties of a rectangle, square, triangle, and circle	13
	13	2.13.01	Guess and check	15
	14	2.02.01	Addition of 2- and 3-digit numbers without regrouping	16
	15	2.10.02	Quarters, half dollars	18
	16	2.03.01	Subtraction through 3-digit numbers without regrouping	19
2.03	17	2.01.07	Round numbers through 99 to the nearest ten	21
	18	2.10.03	Temperature - Celsius and Fahrenheit thermometers	22
	19	2.02.02	Addition of 3-digit numbers without regrouping	23
	20	2.02.03	Addition of 2- and 3-digit numbers using expanded notation without regrouping	25
2.04	21	2.13.02	Locate information	26

REVISED
INSTRUCTIONAL SEQUENCE - LEVEL 2

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
	22	2.10.04	Linear measure - inch and foot.....	28
	23	2.10.05	Linear measure - meter, decimeter and centimeter.....	30
	24	2.06.01	Fractions: fifths, sixths and tenths.....	31
	25	2.10.06	Money - dollars.....	32
	26	2.02.04	Addition of a 2-digit number and a 1-digit number with regrouping (ones to tens).....	33
	27	2.03.02	Subtract a 1-digit number from a 2-digit number with regrouping.....	34
	28	2.12.01	Probability - predict and tally outcomes...	35
2.05	29	2.12.02	Data - collect, tabulate, arrange and compare in tables.....	36
	30	2.13.03	Use data.....	37
	31	2.01.08	Identify and write Roman numerals I-XII....	38
	32	2.10.07	Dozen and half dozen.....	39
	33	2.10.08	Money - make change through the value of a dollar.....	40
	34	2.12.03	Bar graphs.....	41
2.06	35	2.01.09	Odd and even numbers.....	42
	36	2.04.01	Multiplication facts for twos through 10...	43
	37	2.05.01	Introduction to division.....	44
	38	2.05.02	Division facts for twos through 10.....	45
	39	2.10.09	Linear measurement - half inch.....	46
2.07	40	2.04.02	Multiplication facts for fives through 25..	47
	41	2.05.03	Division facts for fives through 25.....	48
	42	2.10.10	Cup, pint, quart.....	49
	43	2.02.05	Addition of 2-digit numbers with regrouping ones to tens.....	50

REVISED
INSTRUCTIONAL SEQUENCE - LEVEL 2

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
	44	2.03.03	Subtraction of 2-digit numbers with regrouping	51
	45	2.01.10	Count forward and backward by patterns of three	52
	46	2.04.03	Multiplication facts for threes through 15.	53
	47	2.05.04	Division facts for threes through 15	54
	48	2.09.03	Attributes of three-dimensional objects	55
2.08	49	2.09.04	Symmetry	56
	50	2.13.04	Patterns	57
	51	2.12.04	Arrangements - use 2-5 items	58
	52	2.02.06	Addition of 2-digit and 3-digit numbers with regrouping (ones to tens)	59
	53	2.02.07	Commutative and associative properties of addition through 999	60
	54	2.03.04	Properties of subtraction	61
	55	2.10.11	Weight - gram and kilogram	62
	56	2.10.12	Weight - ounce, pound	63
	57	2.13.05	Missing information	64
	58	2.01.11	Count forward and backward by patterns of four	65
2.09	59	2.04.04	Multiplication facts for fours to 20	66
	60	2.05.05	Division facts for fours through 20	67
	61	2.10.13	Time - quarter hour, minutes and seconds	68
	62	2.06.02	Identify fractional parts of a number of things	69
	63	2.04.05	Commutative property of multiplication	70
	64	2.05.06	Division/multiplication as inverse operations	71
	65	2.12.05	Ratio - 2:1 correspondence	72
2.10	66	2.10.14	Deciliter	73

REVISED

CONTENT BY TOPIC

LEVEL 2

Topic 01: Numbers and Numeration

2.01.01 Count hundreds through ten hundred (1000)..... 2

2.01.02 Read and write standard numerals (100 through 1000)..... 3

2.01.03 Count by tens and fives to 1000..... 4

2.01.04 Relation symbols =, <, >..... 5

2.01.05 Place value through 999..... 9

2.01.06 Ordinal numbers tenth through thirty-first..... 10

2.01.07 Round numbers through 99 to the nearest ten..... 21

2.01.08 Identify and write Roman numerals I - XII..... 38

2.01.09 Odd and even numbers..... 42

2.01.10 Count forward and backward by patterns of three..... 52

2.01.11 Count forward and backward by patterns of four..... 65

Topic 02: Addition of Whole Numbers

2.02.01 Addition of 2- and 3-digit numbers without regrouping..... 16

2.02.02 Addition of 3-digit numbers without regrouping..... 23

2.02.03 Addition of 2- and 3-digit numbers using expanded notation without regrouping..... 25

2.02.04 Addition of a 2-digit number and a 1-digit number with regrouping (ones to tens)..... 33

2.02.05 Addition of 2-digit numbers with regrouping ones to tens..... 50

2.02.06 Addition of 2-digit and 3-digit numbers with regrouping (ones to tens)..... 59

2.02.07 Commutative and associative properties of addition through 999..... 60

REVISED

CONTENT BY TOPIC

LEVEL 2

Topic 03: Subtraction of Whole Numbers

2.03.01 Subtraction through 3-digit numbers without regrouping..... 19

2.03.02 Subtract a 1-digit number from a 2-digit number with regrouping..... 34

2.03.03 Subtraction of 2-digit numbers with regrouping..... 51

2.03.04 Properties of subtraction..... 61

Topic 04: Multiplication of Whole Numbers

2.04.01 Multiplication facts for 2's through 10. 43

2.04.02 Multiplication facts for 5's through 25. 47

2.04.03 Multiplication facts for 3's through 15. 53

2.04.04 Multiplication facts for 4's through 20. 66

2.04.05 Commutative property of multiplication.. 70

Topic 05: Division of Whole Numbers

2.05.01 Introduction to division..... 44

2.05.02 Division facts for twos through 10..... 45

2.05.03 Division facts for fives through 25..... 48

2.05.04 Division facts for threes through 15.... 54

2.05.05 Division facts for fours through 20..... 67

2.05.06 Division/multiplication as inverse operations..... 71

Topic 06: Fractions

2.06.01 Fractions: fifths, sixths and tenths.... 31

2.06.02 Identify fractional parts of a number of things..... 69

Topic 09: Geometry

2.09.01 Points, lines, line segments, and rays around us..... 6

2.09.02 Explore properties of a rectangle, square, triangle, and circle..... 13

2.09.03 Attributes of three-dimensional objects. 55

2.09.04 Symmetry..... 56

Topic 10: Measurement

2.10.01 Time - months and years..... 11

REVISED

CONTENT BY TOPIC

LEVEL 2

	2.10.02	Quarters, half dollars	18
	2.10.03	Temperature - Celsius and Fahrenheit thermometers	22
	2.10.04	Linear measure - inch and foot	28
	2.10.05	Linear measure - meter, decimeter and centimeter	30
	2.10.06	Money - dollars	32
	2.10.07	Dozen and half dozen	39
	2.10.08	Money - make change through the value of a dollar	40
	2.10.09	Linear measurement - half inch	46
	2.10.10	Cup, pint, quart	49
	2.10.11	Weight - gram and kilogram	62
	2.10.12	Weight - ounce, pound	63
	2.10.13	Time - quarter hour, minutes and seconds	68
	2.10.14	Deciliter	73
Topic 11:	**Algebraic Concepts**		
	2.11.01	Open sentences	8
Topic 12:	**Graphs, Probability and Statistics**		
	2.12.01	Probability - predict and tally outcomes	35
	2.12.02	Data - collect, tabulate, arrange and compare in tables	36
	2.12.03	Bar graphs	41
	2.12.04	Arrangements - use 2-5 items	58
	2.12.05	Ratio - 2:1 correspondence	72
Topic 13:	**Problem Solving**		
	2.13.01	Guess and check	15
	2.13.02	Locate information	26
	2.13.03	Use data	37
	2.13.04	Patterns	57
	2.13.05	Missing information	64
Topic 14:	**Review**		
	2.14.01	Recognize and name whole numbers 0 through 100	1
	2.14.02	Addition and subtraction facts	7

2.14.01 RECOGNIZE AND NAME WHOLE NUMBERS 0 THROUGH 100

(ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

2.14.01.01 count to 100 by ones and tens;
e.g.,

0, 1, 2, 3, 4 ...100
0, 10, 20 ... 100

2.14.01.02 name the whole number immediately before and immediately after any whole number from 1 to 99;
e.g.,

____ 63 ___

2.14.01.03 name the whole number between any two numbers from 0 to 100.
e.g.,

76 ____ 78

GETTING STARTED

Prepare felt animal cut-outs and a flannelboard. Place ten animal figures on the flannel board in a row. Ask the students to tell you how many animals you put on the board. (10) Ask a student to count them. Place another five animal cut-outs on the same board. Say, "Who can count from 1 through 15 in consecutive counting order?"

Prepare egg cartons, beans, and cards numbered from 1 through 10. Distribute egg cartons and beans to each student. Display the numeral 1 on a number card. Ask the student to put the amount shown on the card in one compartment. Display the numeral 2 to the class. Ask the students to count this number of beans and put them in another compartment. Do the same for numbers 3 through 10. Ask a student to count off the number of beans in each part of the egg carton.

2.14.01

2.14.01.01 **count to 100 by ones and tens**

STRATEGY 1: Obtain 100 counting sticks (coffee stirrers, pencils, straws, ...) and put them in a box. Say, "I will need your help to count the sticks." Starting with 1, select a student to come to the front and count aloud ten sticks. Direct the student to bundle ten sticks with a rubber-band and place them aside. Select another student to come to the front of the room and count ten more sticks, 11 through 20. Direct the student to bundle the ten sticks with a rubber-band and place them aside. Continue this procedure until all the sticks have been counted and bundled in groups of ten. Select a student to count the bundled sticks aloud by tens. Direct the entire class to count by ten aloud through 100

STRATEGY 2: Prepare a number chart 1 through 100 for each student. Do not fill in numbers. Distribute the charts and crayons to each student. Draw a number chart on the chalkboard. Direct students to fill in the numbers, as selected students recite numbers in groups of ten, e.g., one through ten, eleven through twenty, ... As students complete their charts, do the same at the chalkboard. Select a student to read the number at the end of each row aloud (10-20-30...). Direct students to color the boxes with multiples of ten, e.g.,

2.14.01

STRATEGY 2: cont'd

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

2.14.01.02 **name the whole number immediately before and immediately after any whole number from 1 to 99**

STRATEGY 1: Prepare cards with whole numbers 1 through 99 written one per card, e.g.,

[1] [2] [3] ... [98] [99]

Call ten students to the front of the room. Give each student a number card starting with the numeral 1. Direct them to show their number card and call out the number. Ask the students to place their cards behind their backs. Ask the first student to show his/her card and call out the number. Continue with the next student. Skip the third student. Continue with the fourth student. Skip the fifth and continue with the sixth student through the tenth student.

2.14.01

STRATEGY 1: cont'd

After the tenth student has shown his/her card and called out the number, refer to the students whom you skipped. Ask, "What number comes before the number 4? What number comes after the number 4?" Repeat this procedure in groups of ten through 99.

STRATEGY 2:

Select a student to come to the chalkboard and write the numbers 1 through 10. When the student is finished, go to the chalkboard and erase a number immediately before and immediately after any number, e.g., -- 7 --. Select another student to come to the chalkboard and fill in the missing numbers. Repeat this procedure through the number 99.

2.14.01.03 **name the whole number between any two numbers from 0 through 100**

STRATEGY 1:

Prepare a chart numbered chart 0 through 100. Leave out various numbers. Display the chart to the students. Elicit from the students the missing numbers. As the number is identified fill it in on the chart.

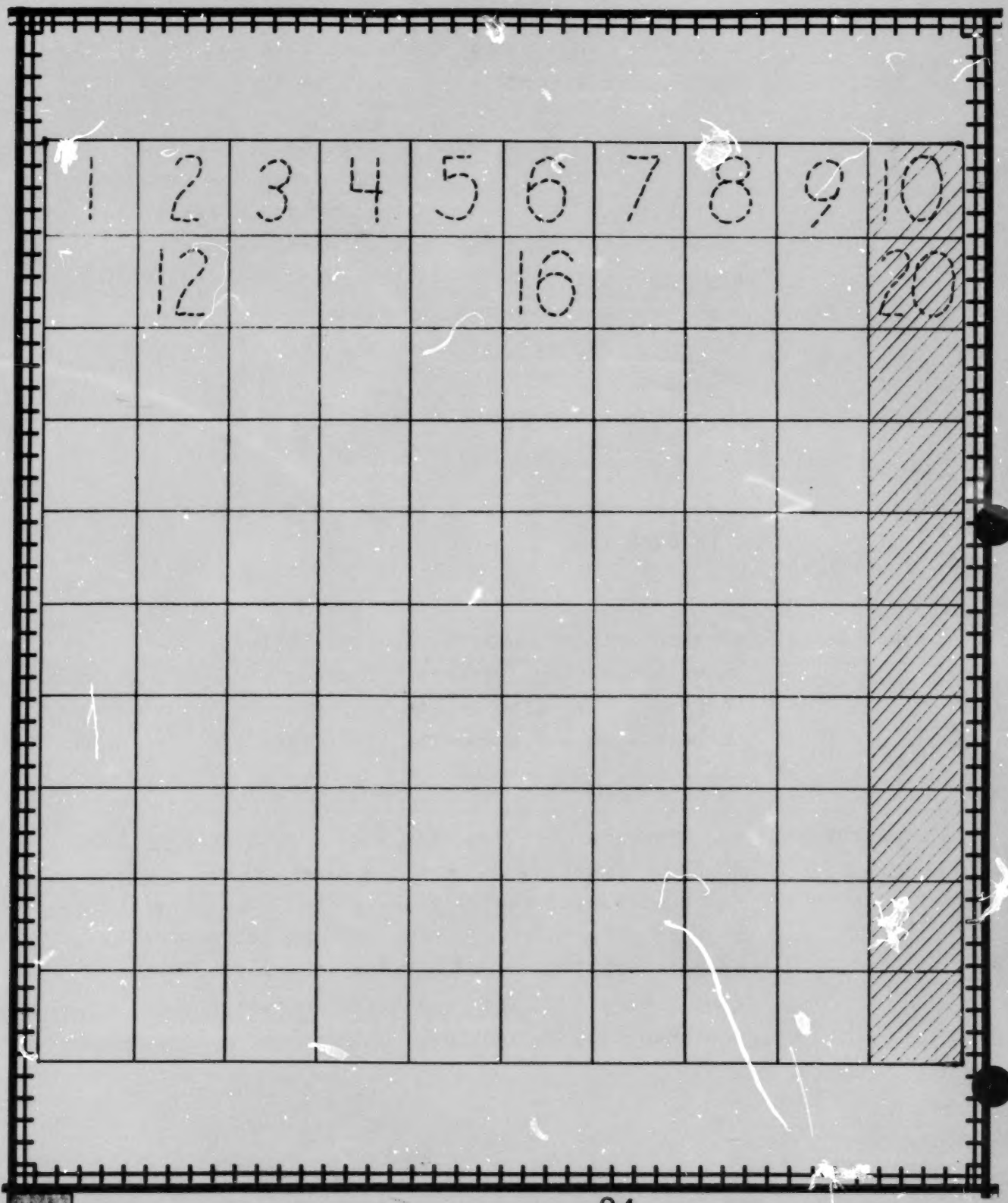
STRATEGY 2:

Say, "We are going to play a game called, <u>Name that Number</u>." Explain to students that you will name two numbers and they must name the number that belongs between them. Say, "I'm thinking of a number. The number is between 15 and 17. Name that number." Select a student to name the number. Continue this procedure.

P.O. 2.14.01.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Complete the number chart. Counting by ones.
Count by tens and color those numbers red.

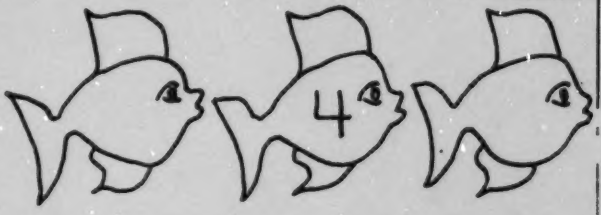


P.O. 2.14.01.02

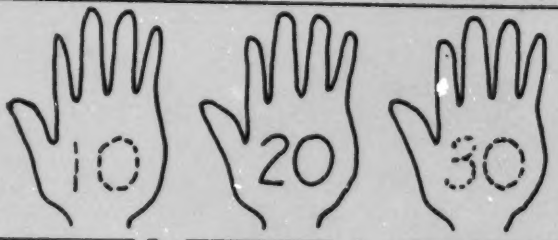
NAME: _____ CLASS: _____ DATE: _____

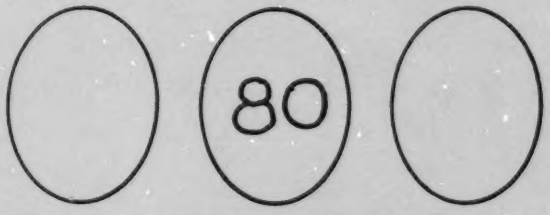
Directions: Write the missing numbers.

Count by ones.



Count by tens.



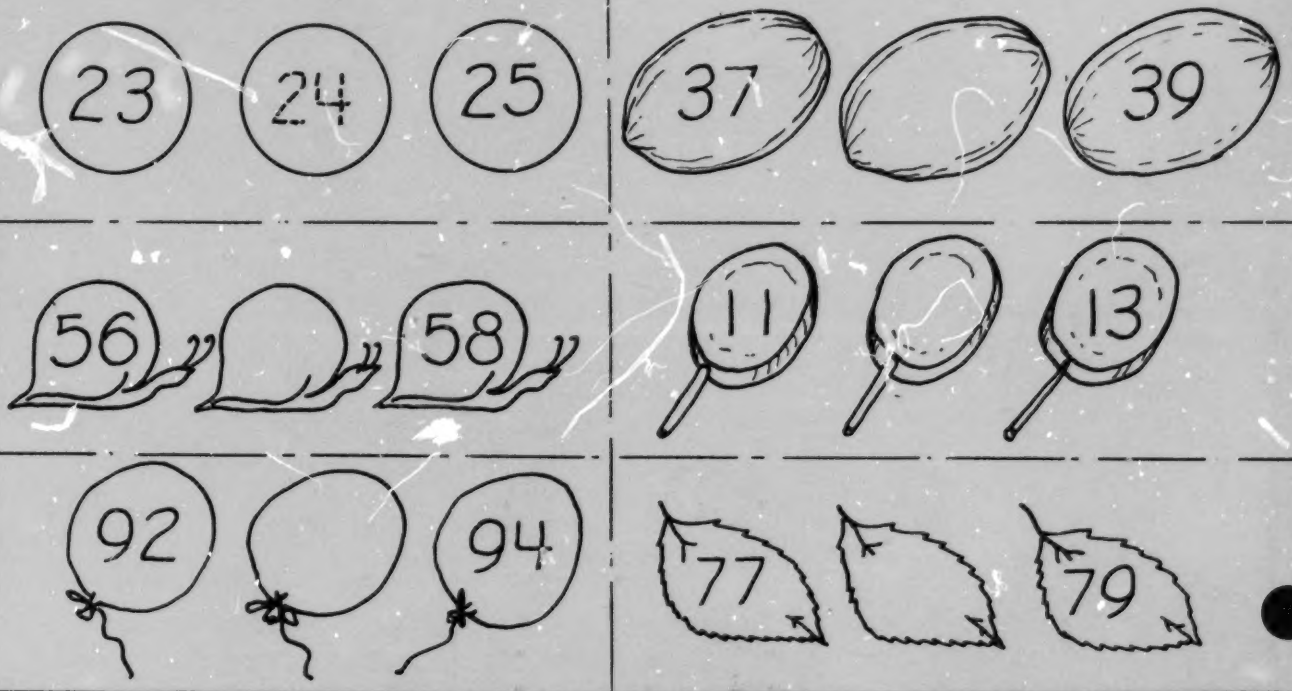


P.O. 2.14.01.03

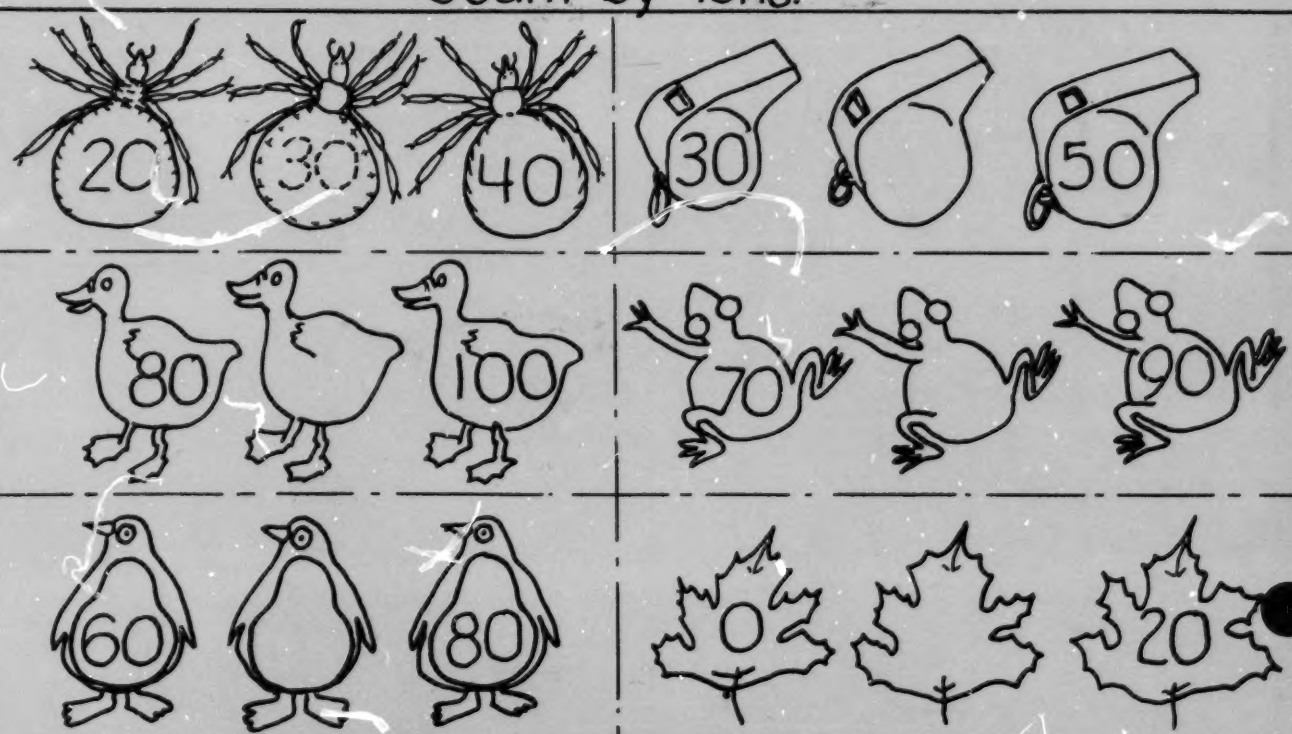
NAME:_____ CLASS:_____ DATE:_____

Directions: Fill in the missing number in each row.

Count by ones.



Count by tens.



2.01.01 COUNT HUNDREDS THROUGH TEN HUNDRED (1000)

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.01.01B count forward and backward by hundreds through ten hundred (1000);
e.g.,
100, 200, 300, ...
1000, 900, 800, ...

2.01.01.02B write the numbers from 100 through 1000 by hundreds;
e.g.,
100, 200 1000

2.01.01.03A identify and write the number that comes one hundred before and one hundred after a given number;
e.g.,
_____400_____

2.01.01.04A identify and write the hundred that comes between a given pair of hundreds through 1000.
e.g.,
400, _____, 600

2.01.01

VOCABULARY

TERMS	**SYMBOLS**
forward	
backward	
thousand	1000

GETTING STARTED

Play "Count Up" to review counting by ones through 100. Here are the rules: Point to a student and say "Count Up." The student begins counting aloud, "1,2,3,4,..." When the student reaches 10, say "Stop." Ask another student to continue where student #1 left off. Stop at 20. Continue counting each decade until the goal of 100 is reached.

The same game may be used to count backward by ones, starting with 100; this game could be called "Count-Down."

Display 10 ten strips on the chalkboard. Below each strip write the numerals from 10 through 100 in sequence.

e.g.,

Ask the students to put their heads down on their desks. Erase the numeral below any strip. Ask the students to look at the chalkboard and, either as individuals or as a group, to provide the missing number.

Repeat this procedure, arranging the numerals from 100 to 10 in sequence, e.g., 100, 90, 80, 70... Erase one of the numerals below a strip. Ask a student, or the entire class, to provide the missing number. Repeat this procedure several times.

2.01.01.01 count forward and backward by hundreds through ten hundred (1000)

STRATEGY 1: Display a squared material hundreds card. Say, "This represents 100." Display two hundreds cards and say, "What number does this group of cards represent?" (200) Display three hundreds cards. Say, "What number does this group of cards represent?" (300) Continue this procedure with cards through ten hundreds (1000).

Write numbers on the chalkboard so that students can read them. Explain that a hundred number has three places. Underline the two zeros in each number. Elicit that the number in the hundreds place changes, but that the zeros remain unchanged.

Use the squared material hundreds cards to make a number line (pre-punch cards for stringing) on a string. Tape the number line to the chalkboard and write 100, 200, 300 above the appropriate card. Elicit the next number in sequence, proceeding through 1000. Ask another student to read forward, then read backward.

If desired, each student could make his/her own number line with the squared materials.

STRATEGY 2: Prepare three number lines using a sentence strip roll. Place the strip, numbered 1 through 10, on the chalkboard. Place another strip, numbered 10 through 100 counting by tens, below it. Say, "How can we make a strip that will help us to count quickly to 1000? Would it be faster to count by ones or tens? Is there a faster way? Could we use larger numbers?"

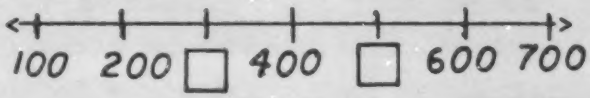
STRATEGY 2: cont'd Try different units. Develop a pattern using hundreds and record on the new strip. Ask the students to count forward and backward using the number lines they have developed.

2.01.01.02 write the numbers from 100 through 1000 by hundreds

STRATEGY 1: Prepare ten hundreds cards. Show one card to the class. Say, "This card represents 100." Tape the card to the chalkboard. Write the number 100 below it. Show two hundreds cards and elicit that they equal 200. Ask a student to write 200 on the chalkboard under the two cards. Continue until you have used ten hundreds cards. Ask the students to write the numbers 100 through 1000 beneath each of the hundreds cards, e.g., three hundreds cards = 300, four hundreds cards = 400.

STRATEGY 2: Draw a number line on a sentence strip roll and tape it to the chalkboard. Write the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 on the number line. Place a second number line, without numbers, under the first. Ask several students to come to the chalkboard and fill in the numbers on the blank number line. Prepare a sheet with scale marks for a number line on it. Distribute one to each student. Ask the students to fill in the number line using the numbers 100, 200, 300, ...1000.

e.g.,



2.01.01.03 identify the number that comes one hundred before and one hundred after a given number

STRATEGY 1: Place a flannelboard on the chalkboard ledge. Place number cards (small cards numbered 100 through 1000) in a pile near the flannelboard. Mix the cards. Explain that you are going to call out a number, e.g., 300. A student will place the number you call out on the flannelboard. Ask another student to place the number that comes before the number on the flannelboard in the correct position, e.g., [200], 300. Ask another student to place the number that comes after the given number on the flannelboard, e.g., 300, [400].

Continue this procedure, using other number combinations.

STRATEGY 2: Write the numbers 100 through 1000 on the chalkboard. Ask a student to choose one number from the set on the chalkboard. Write that number. Put a line before the number, e.g., ____400. Ask a student to go to the chalkboard and write the number that is one hundred before the given number on the line.

Write the number again and put a line after it, e.g., 400 ____. Ask a student to write the number that comes one hundred after the given number on the line.

Repeat this procedure, using numbers 100 through 1000.

2.01.01.04 **identify and write the number that comes between a given pair of numbers through 1000**

STRATEGY 1: Prepare two sets of oaktag cards. One set will be white, the other set will be yellow. Each set will contain cards naming multiples of one hundred.
e.g., [100] [200] [300]... [1000]

Divide the class into several equal groups of students. Give each group two sets of cards. Explain that each group will prepare an American cheese sandwich. The cheese (yellow cards) must be placed between two slices of bread (white cards).

Call out two numbers, asking only bread holders to stand from each group, e.g., call 100 and 300. The group will find the yellow card that fits in the sandwich (the yellow 200 card).

Place the students side by side to visually display the correct sequence and represent the sandwich.
e.g.,

Continue this procedure, using other number combinations.

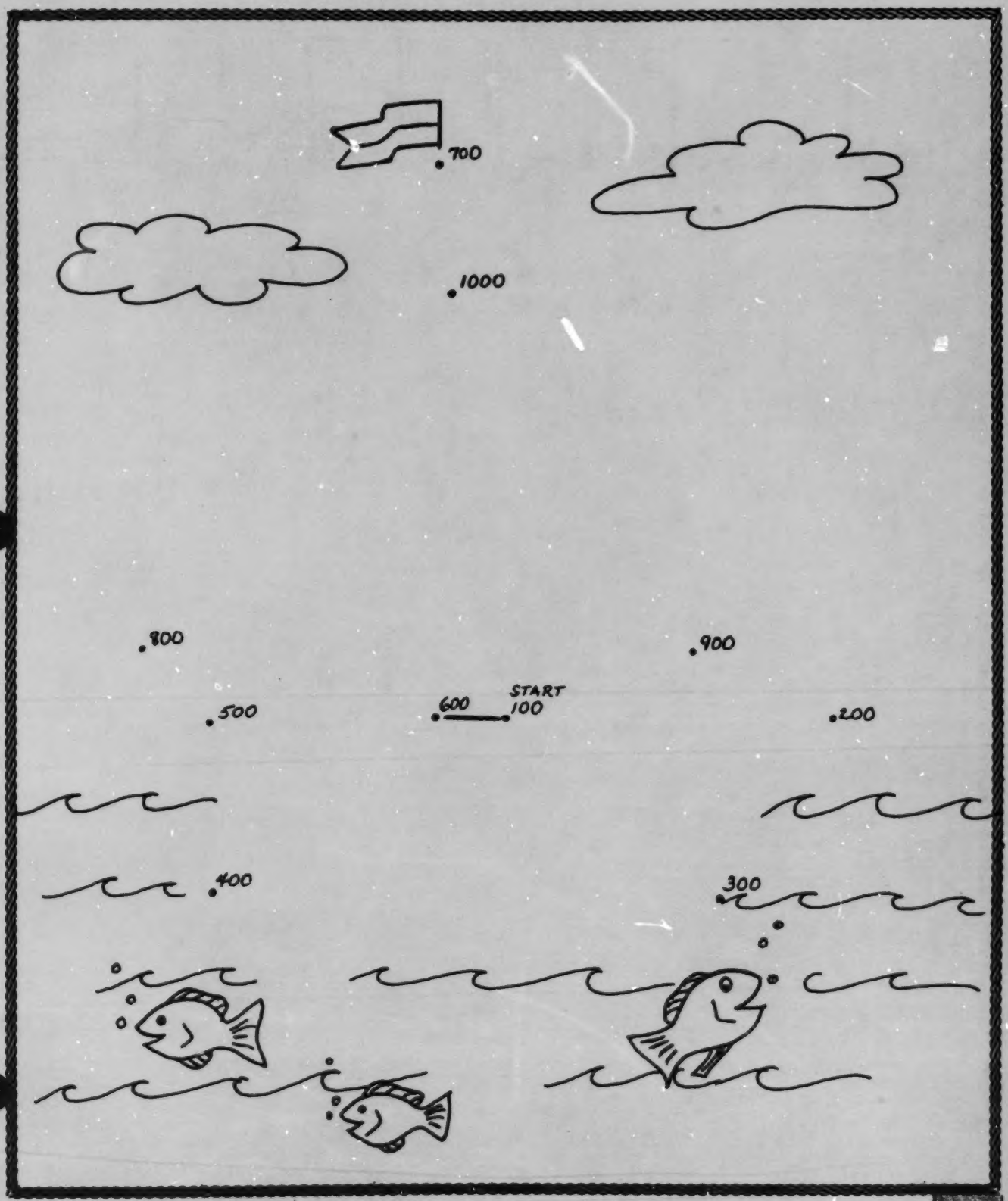
STRATEGY 2: Write three numbers on the chalkboard in sequential order in multiples of hundreds, e.g., 500, 600, 700. Ask the students to look at the three numbers and then put their heads down on their desks. Erase the number that comes between 500 and 700. Ask the students to look at the chalkboard and, either as individuals or as a group, to name the missing number.

Continue this procedure, using different numbers. Ask the students to fill in the missing number.
e.g., 400 ____ 600

P.O. 2.01.01.01

NAME:_____ CLASS:_____ DATE:_____

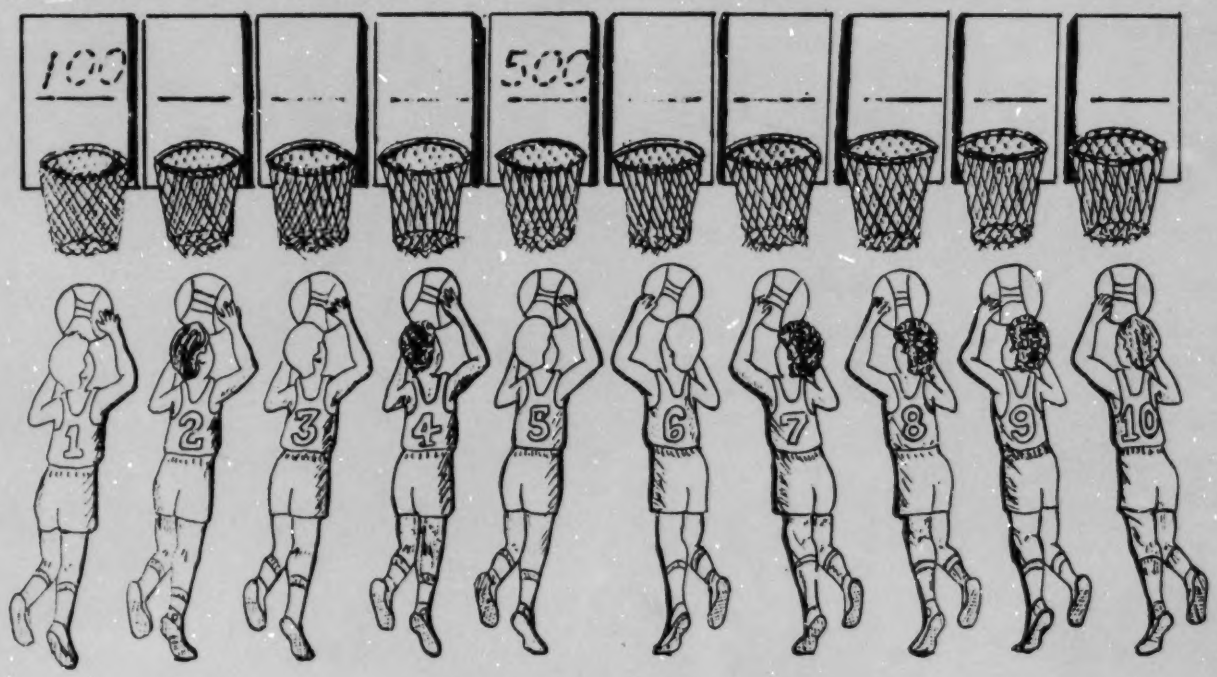
Directions: Connect the dots in order. Start at 100. End at 1000.
What picture have you formed?



P.O. 2.01.01.02

NAME:_____ CLASS:_____ DATE:_____

Directions: Write the numbers on the scoreboard.



Finish the count:

100 ___, ___, ___, ___, ___, ___, ___, ___, ___.

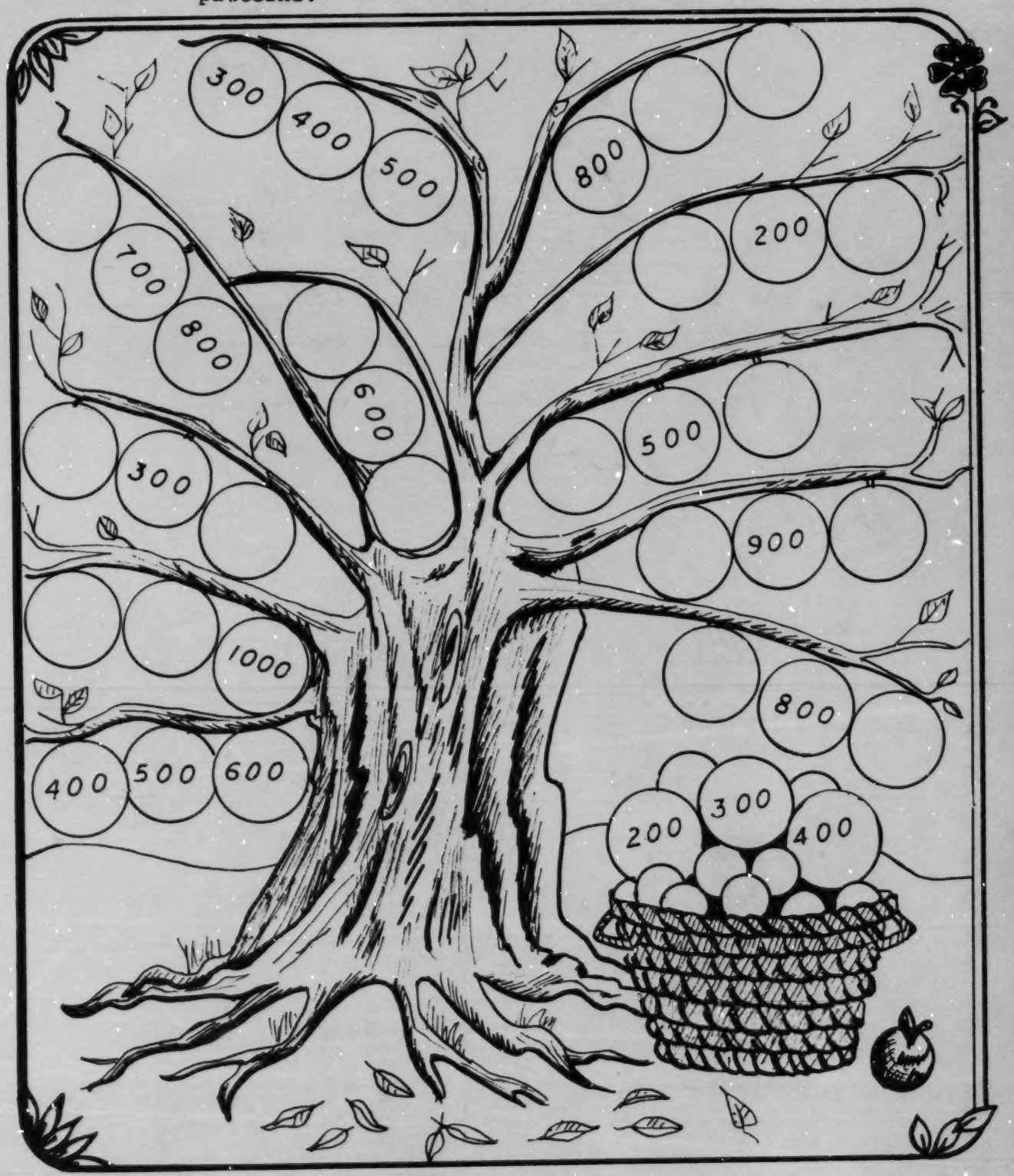
Can you now count backwards?

1000, ___, ___, ___, ___, ___, ___, ___, ___.

P.O. 2.01.01.03

NAME:_____ CLASS:_____ DATE:_____

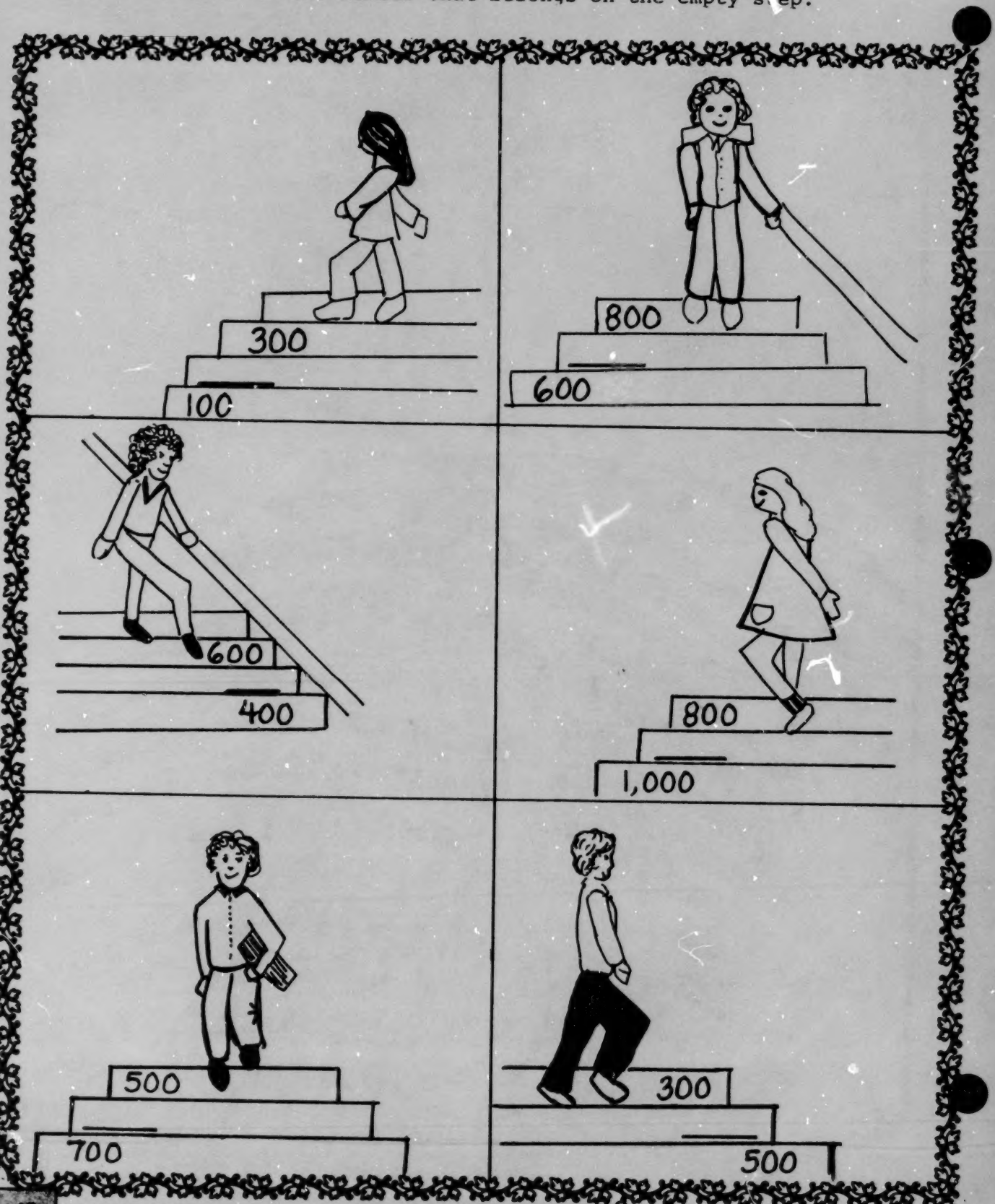
Directions: Write the number in the circles to complete the number patterns.



P.O. 2.01.01.04

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill in the number that belongs on the empty step.



2.01.02 READ AND WRITE STANDARD NUMERALS (100 through 1000)

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.02.01B count and write numbers forward and backward through 1000 without bridging the hundreds;
e.g.,
101, 102, 103, ...
103, 102, 101

2.01.02.02A identify the number that comes one before and one after a given number through 1000;
e.g.,
_____853_____

2.01.02.03A identify and write the number that comes exactly between a given pair of numbers through 1000;
e.g.,
413, _____, 415

2.01.02.04B count forward and backward by ones bridging the hundreds (99 through 1000).
e.g.,
299, 300, 301, ...
301, 300, 299, ...

2.01.02

VOCABULARY

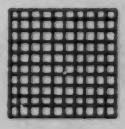
TERMS

forward
backward

GETTING STARTED

Prepare 100 counting cubes, lima beans, or any other objects that can be used for counting. Ask ten students to stand up. Say, "How many students are standing? Who can count them?" After the correct response has been given, ask a student to go to the board and write the numeral "10." Ask another student to go to the counting objects and count out the same number of objects.

Continue this procedure, using other numbers.

Ask a student to count from 10 to 100 by tens. Draw a 100 chart on the chalkboard. 

Ask the students to fill in the first two rows.
e.g.,

1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20

Divide the class into two groups (A and B). Ask the first student in Group A to start counting from 21 until you say "Stop." While the student is counting, fill in the chart. If the student counts correctly he/she goes to the end of the line and another student on the same team continues counting. If the student makes an error he/she sits down and the other team starts to count.

Continue this procedure until the chart is completed.

2.01.02.01 count and write numbers forward and backward through 1000 without bridging the hundreds

STRATEGY 1: Prepare a number line from 100 through 1000 on sentence strip roll. Tape it to the chalkboard. Ask the students to count aloud starting at the number you indicate, e.g., 100, 101, 102. Begin at other points on the line and continue this procedure.

Write a number, e.g., 256, on the chalkboard and ask a student to come to the chalkboard and write the three numbers that come after the given number.

Reverse this procedure, using other numbers.

Ask the students to take out their notebooks. Point to a number on the number line. Say, "Write this number and the next three consecutive numbers in your notebook."

Repeat this procedure, using three other numbers. Reverse the above strategy to show counting backward.

STRATEGY 2: Prepare a set of cards randomly numbered, e.g., 252, 487, 641 ... Only include numbers from 100 through 1000. Be sure to have at least one card for each student in your class. Give each student a card. Say, "Take out your notebook and copy the number that is on your card. Write the next three numbers counting forward and the next three numbers counting backward."

Ask the students to exchange cards. Repeat this procedure.

2.01.02.02 **identify and write the number that comes one before and one after a given number through 1000**

STRATEGY 1: Say, "254. What number comes after 254?" Ask a student to write both numbers on the chalkboard, e.g., 254, 255.

Repeat this procedure, using other numbers.

Write a number on the chalkboard, e.g., 357. Say, "What number comes before the given number. Come to the chalkboard and write both numbers, e.g., 356, 357." Use other numbers, providing opportunities for all of the students to answer.

Ask the students to write in their notebooks the number immediately before and immediately after a given number. Say, "203." Have the students write the complete sequence 202, 203, 204 in their notebooks.

STRATEGY 2: Prepare packs of cards with sequences of three numbers, e.g., 325, 326, 327; 781, 782, 783 ... so that each student can be given one card. Prepare a list of the number sequences for yourself. Shuffle the cards and distribute one card to each student. Say, "Copy your number into your notebook and write the number that is one before and one after it." To check, call out a number, e.g., 326, and ask the student with that number to read the sequence. Have additional packs of cards available.

2.01.02.03 identify and write the number that comes between a given pair of numbers through 1000

STRATEGY 1: Make packs of cards in sequences, e.g., 254, 255, 256 so that each student can be given one card. Include numbers through 1000. Not all numbers must be included. Give each student one card. Say, "I am going to call out two numbers. The holders of these numbers are to come to the front of the room, face the class, and leave a space between them. The holder of the missing number is to come to the front of the room, stand in the empty space, and face the class." The students will then say their numbers and write them in sequence on the chalkboard.

Repeat this procedure, using other numbers.

STRATEGY 2: Say a number, e.g., 376. Ask a student to write the number on the chalkboard and to draw a horizontal line next to the number, e.g., 376— Say, "378." Ask the student to write 378 next to the line, e.g., —378. Ask another student to come to the chalkboard and write the number that comes between 376 and 378 on the line, e.g., 376 377 378. Do another sample and have the students return to their seats. Write five sets of numbers on the chalkboard, e.g.,

306 -- 308
457 -- 459
322 -- 324
677 -- 679
844 -- 846

STRATEGY 2: con't — **Ask five students to come to the chalkboard to complete the examples.**

2.01.02.04 count forward and backward by ones, bridging the hundreds (99 through 1000)

STRATEGY 1: Place the following charts on the chalkboard.

e.g.,

190	191	192	193	194	195	196	197	198	199
200	201	202	203	204	205	206	207	208	209
390	391	392	393	394	395	396	397	398	399
400	401	402	403	404	405	406	407	408	409

790	791	792	793	794	795	796	797	798	799
800	801	802	803	804	805	806	807	808	809

Tell the students to count forward from a given number, e.g., point to 194 and ask students to count to the end of that line.

Say, "What comes after 199?" Elicit 200 from the students. Ask the students to continue counting. Repeat with the next two sequences, e.g., 396, and ask the students to count five numbers forward. Repeat with other numbers in the sequence, making sure to bridge the hundreds. Do the same counting backward.

STRATEGY 2: Write the following sequences on the chalkboard:

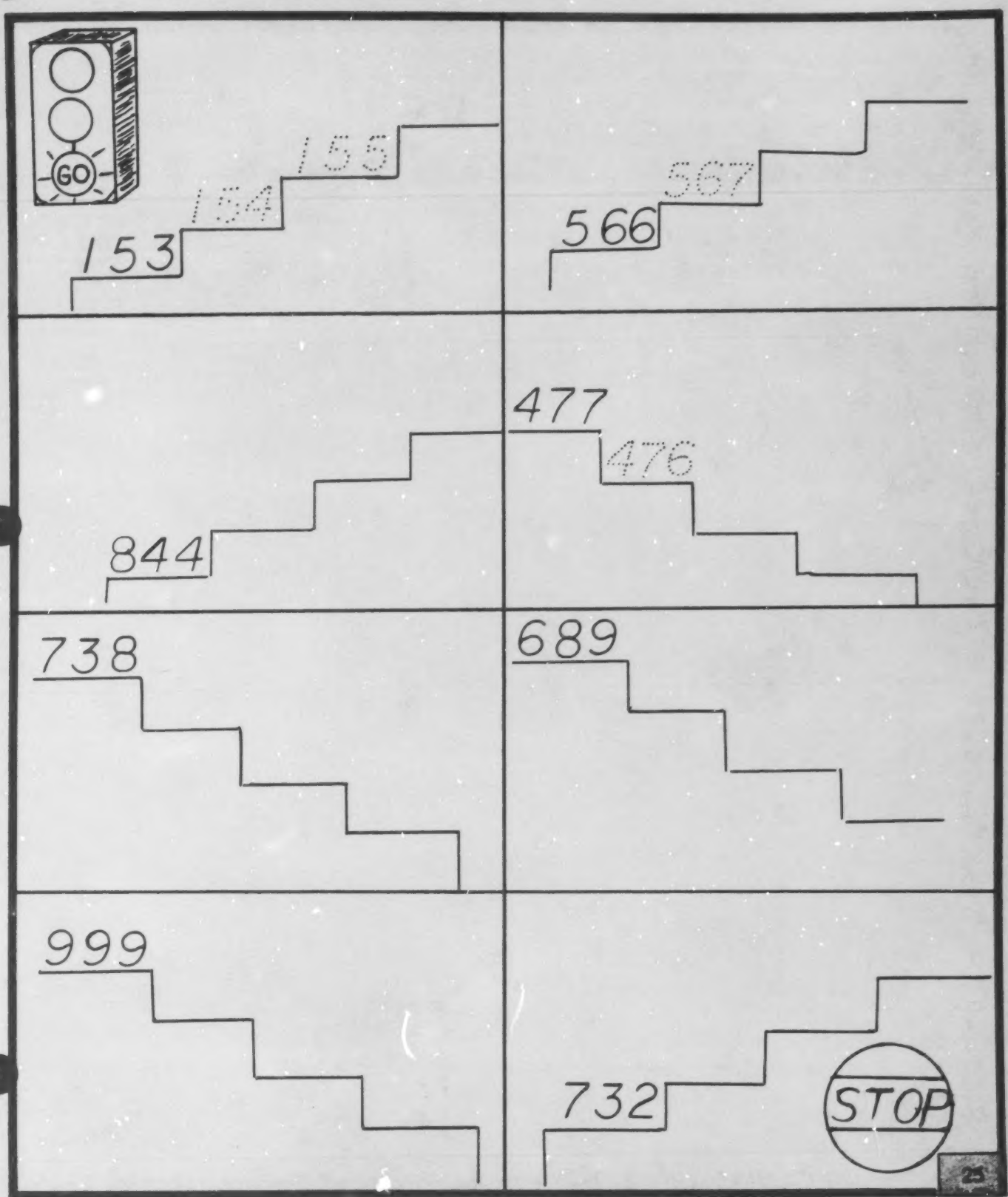
394 395 396 --- 398 399 --- 401 ---
598 599 --- 601 602 603
799 800 --- 802 803 804
897 898 --- 900 --- 902

Call students to the chalkboard to enter the missing numbers.

P.O. 2.01.02.01

NAME: _____ CLASS: _____ DATE: _____

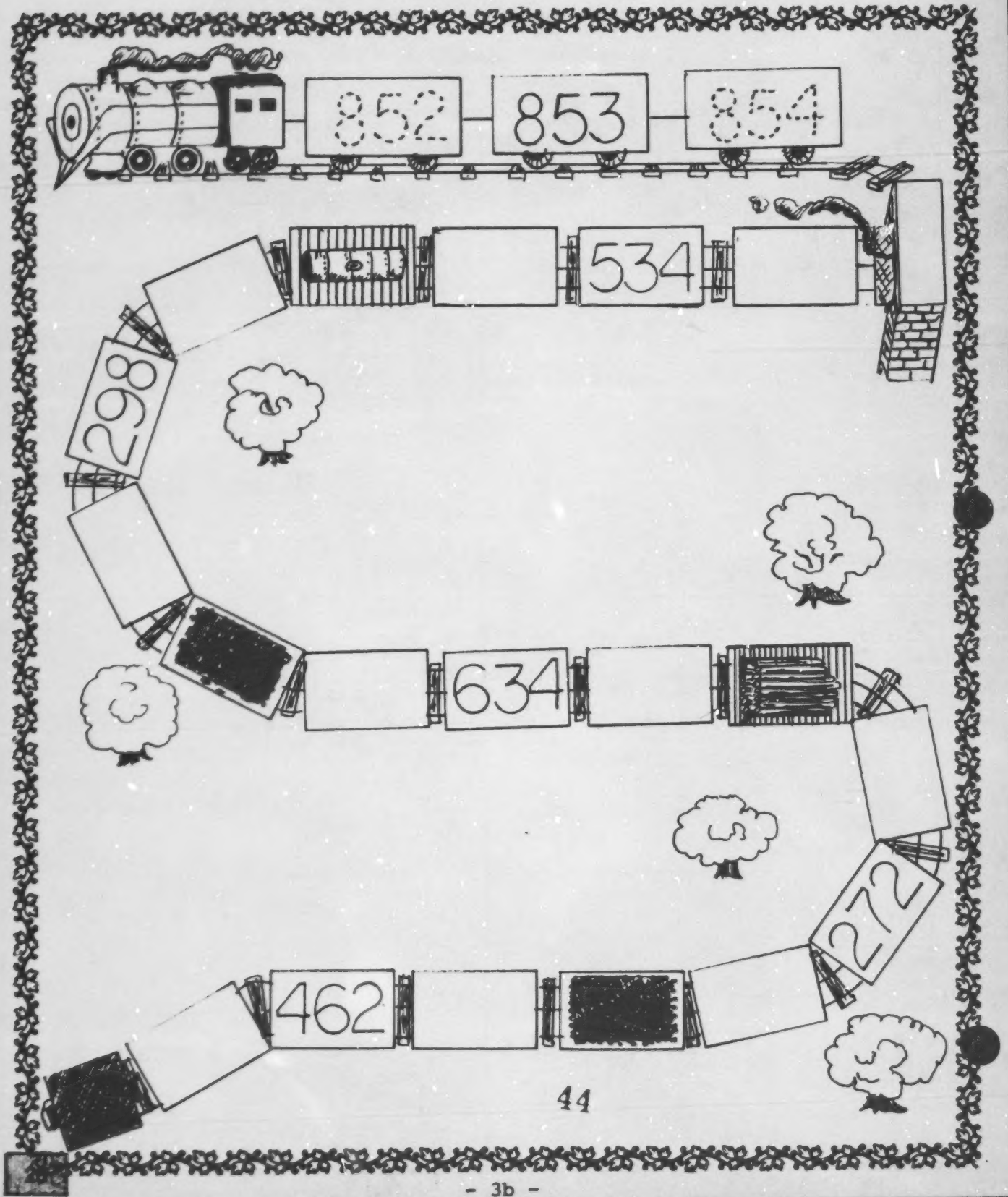
Directions: Go up or down the stairs by filling in the missing numbers.



P.O. 2.01.02.02

NAME:_____ CLASS:_____ DATE:_____

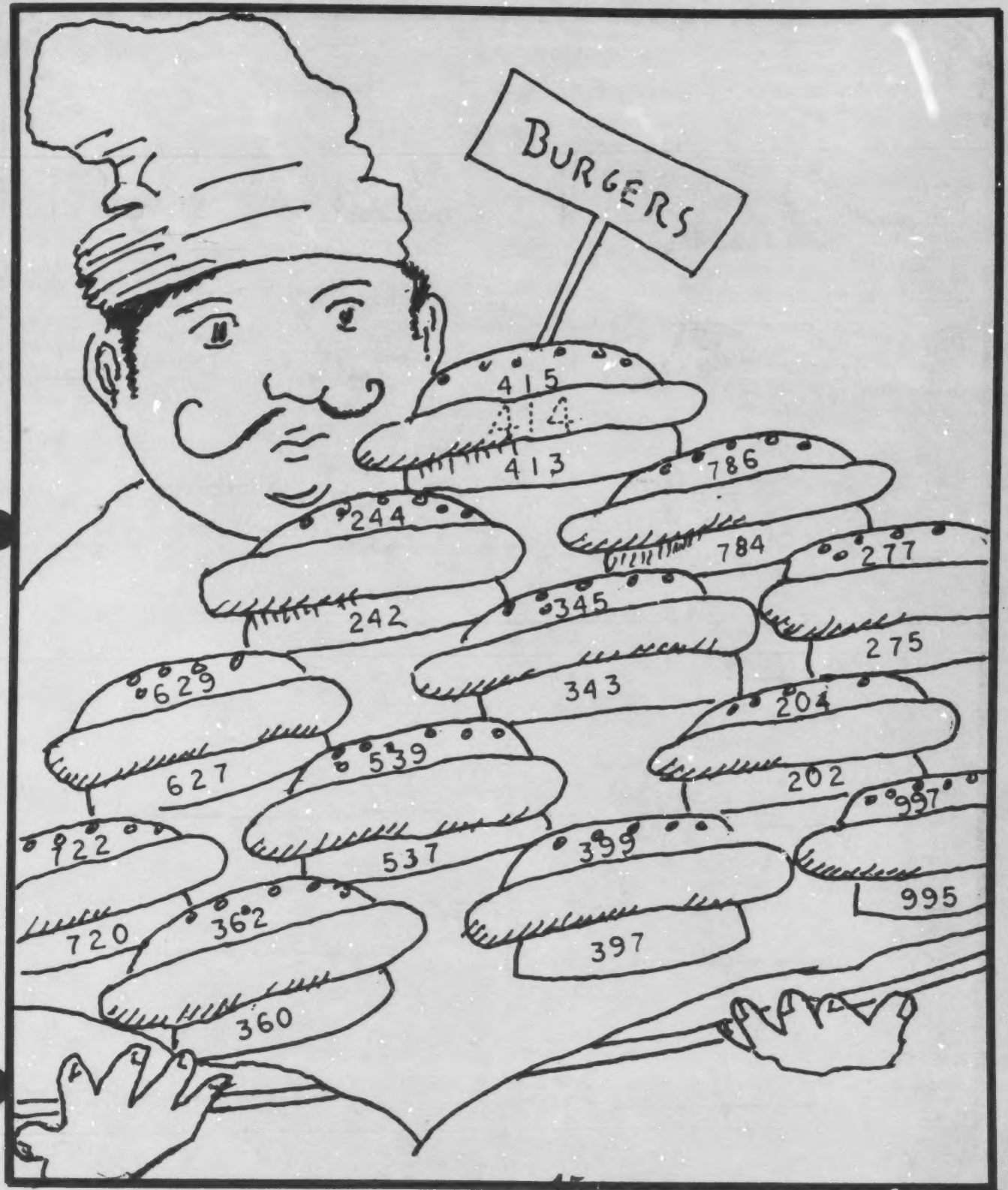
Directions: Put in the missing numbers on these trains.



P.O. 2.01.02.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Can you make a number sandwich? Fill in the missing number.

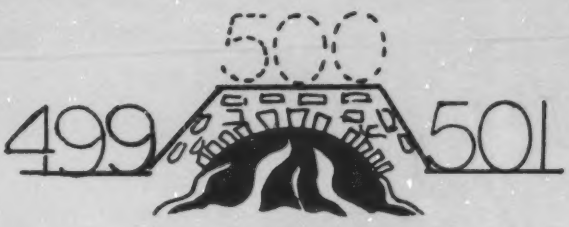


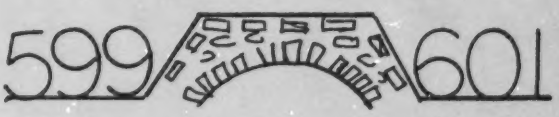
P.O. 2.01.02.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Part I Put in the number that completes the bridge.
Part II Fill in the missing blanks.

PART 1





PART 2

501, ___, 499

301, ___, ___, 298

401, ___, ___, 398

202, ___, ___, 199

702, ___, ___, 699

601, ___, ___, 598

2.01.03 COUNT BY TENS AND FIVES TO 1000

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.03.01B count and order numbers 100 through 1000 by tens;
e.g.,
100, 110, 120, ..., 1000

2.01.03.02B write numbers 100 through 1000 by tens;
e.g.,
100, 110, 120.....

2.01.03.03B count and order numbers 0 through 1000 by fives;
e.g.,
110 105 115 100
100, 105, 110, 115

2.01.03.04B write numbers 0 through 1000 by fives.
e.g.,
100, 105, 110, ...1000

GETTING STARTED

Write a multiple of 5, not larger than 100, on the chalkboard. Ask a student for the next number counting by fives. Continue this procedure, using different multiples of five.

Repeat this procedure, using multiples of ten.

Prepare a set of cards numbered in multiples of 5 through 100. Distribute a card to each student. Duplicate cards may be used. Say, "We are going to play a counting game." Write a number on the chalkboard (either a multiple of five or a multiple of ten). Say "five" or "ten." The students, with the next larger multiple of five or ten are to hold their cards over their heads. Check that the correct cards are held in the air. Ask students to display their cards so that everyone can see them. Ask another student if he/she agrees that the displayed card is the next correct number. (Do this whether the response is correct or incorrect.)

Repeat this procedure, using other numbers.

2.01.03

2.01.03.01 **count and order numbers 100 through 1000 by tens**

STRATEGY 1: Write 100 on the chalkboard. Say, "The next number counting by tens is 110. The next number counting by tens is 120. What is the next number counting by tens?" Continue this procedure.

Repeat this entire procedure, using the following numbers as your starting point: 230, 450, 680, 790, 900.

STRATEGY 2: Prepare a set of cards numbered from 100 through 1000 in multiples of ten. Divide your class into nine groups. Give each group a set of cards numbered 110, 120, 130, ...200; 210, 220, 230, ...300; ...910, 920, 930, ...1000. Mix the cards before giving them to each group. Tell the students to place the cards in counting order.

Check each group's cards to see if they are in the correct order. Tell the students to mix the cards and pass them to another group. Repeat this procedure.

2.01.03.02 **write numbers 100 through 1000 by tens**

STRATEGY 1: Write 100 on the chalkboard. Tell the students the next larger number counting by tens is 110. Write 110 on the chalkboard. Ask a student to go to the chalkboard and write the next larger number counting by tens. Repeat this procedure several times.

Repeat the entire procedure, selecting two or three different numbers as starting points.

STRATEGY 1: cont'd

Repeat the entire procedure, selecting two or three different numbers as starting points.

Continue this procedure having the students name a starting number.

STRATEGY 2: Prepare a set of cards numbered from 100 through 1000 in multiples of ten. Give each student a card. Ask the students to look at their cards and then to write in their notebooks the next five numbers counting by ten. Check the students' work and distribute other cards, or have the students exchange cards with a neighbor.

2.01.03.03 count and order numbers 100 through 1000 by fives

STRATEGY 1: Write 100 on the chalkboard. Say, "The next number counting by fives is 105. The next number counting by fives is 110. What is the next number counting by fives?" Repeat this procedure several times.

Repeat the above procedure, using the following numbers as your starting point: 245, 355, 510, 625, 780.

STRATEGY 2: Prepare a set of cards numbered from 100 through 1000 in multiples of five. Divide the class into nine groups. Give each group a set of cards. Be certain to mix the cards before giving them to each group. Tell the students to place the cards in counting order. Check each group's cards to see if they are in the correct order. Then tell the students to mix the cards and pass them to another group. Repeat this procedure.

2.01.03

2.01.03.04 **write numbers 100 through 1000 by fives**

STRATEGY 1: Write 100 on the chalkboard. Tell the students the next larger number counting by fives is 105. Write 105 on the chalkboard. Ask a student to go to the chalkboard and write the next larger number counting by fives. Repeat this procedure several times.

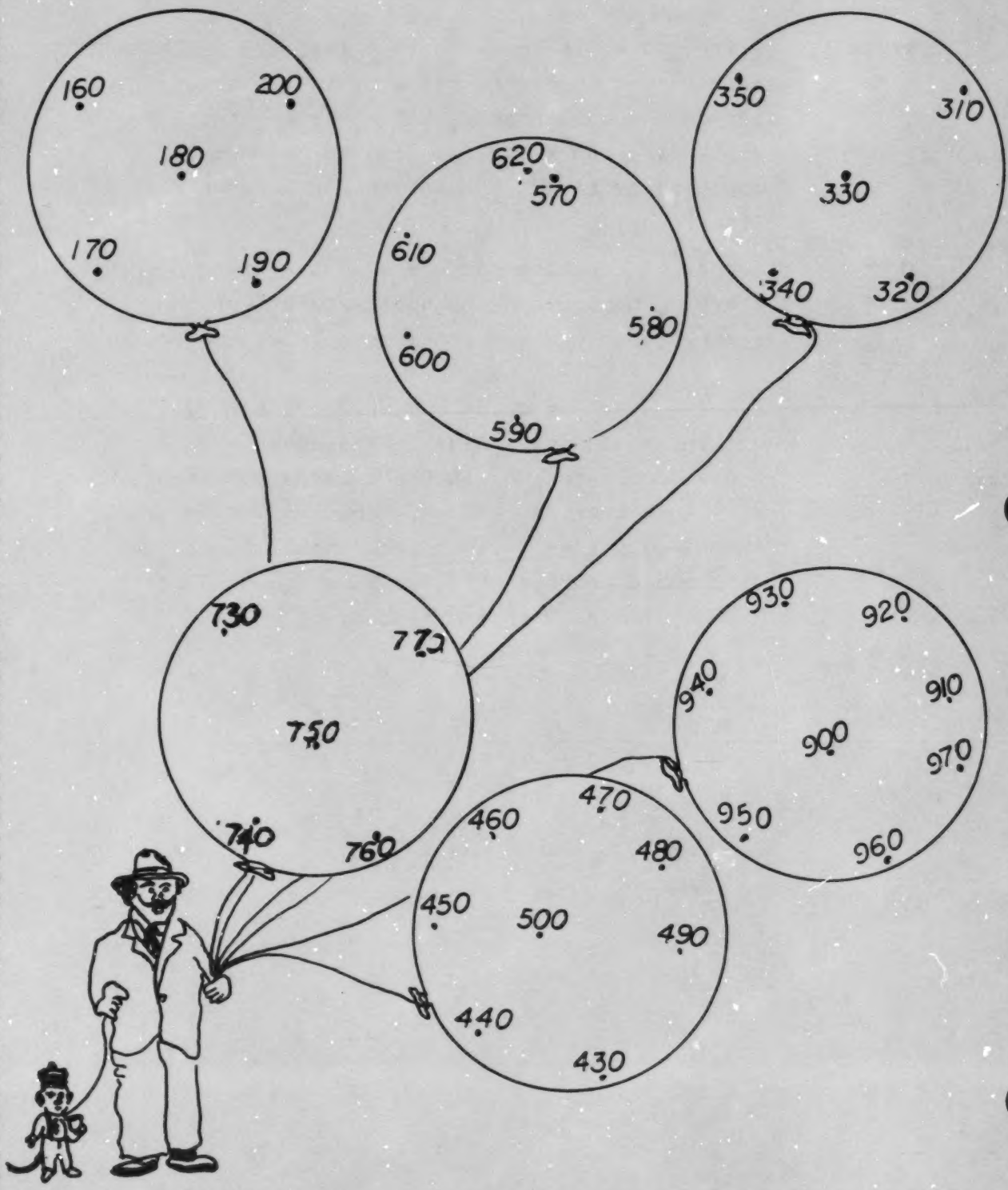
Repeat this entire procedure with a different starting number. Ask students to select the starting numbers and continue this procedure.

STRATEGY 2: Prepare a set of cards numbered 100 through 1000 in multiples of five. Give each student a card. Ask the students to look at their cards and then to write, in their notebooks, the next five numbers counting by five. Check the students' work and distribute another card, or have the students exchange cards with a neighbor.

P.O. 2.01.03.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Draw a line that connects the numbers in each balloon in the correct order.

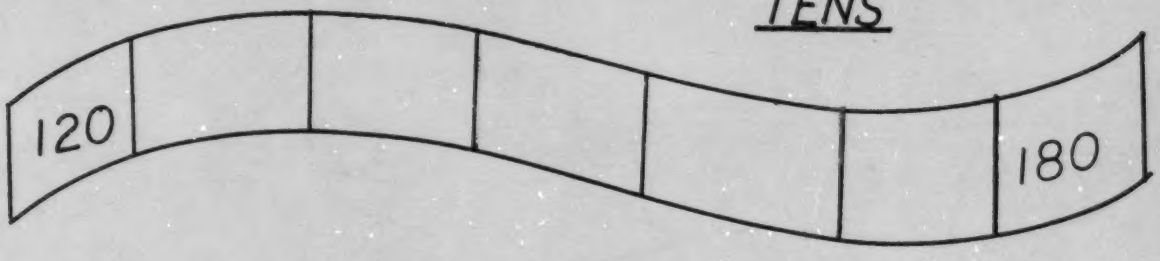


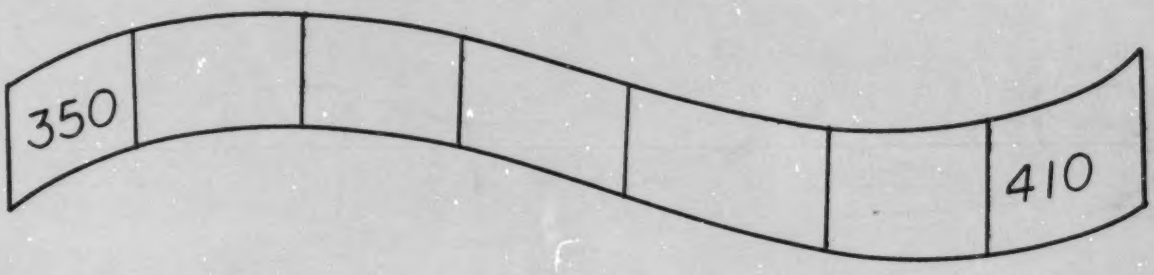
P.O. 2.01.03.02

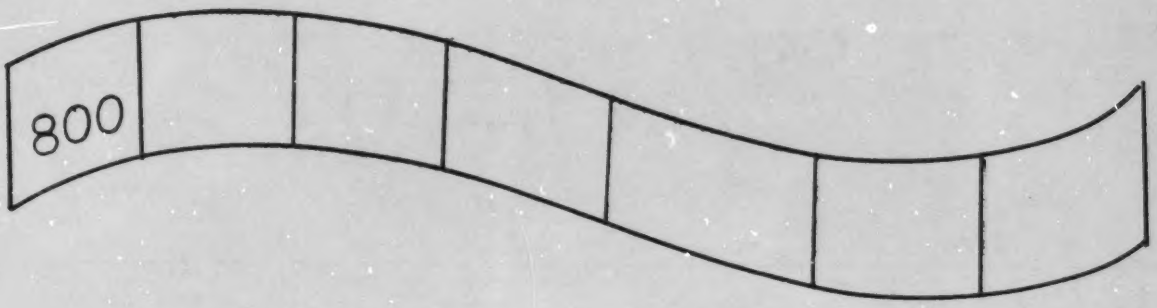
NAME: _____ CLASS: _____ DATE: _____

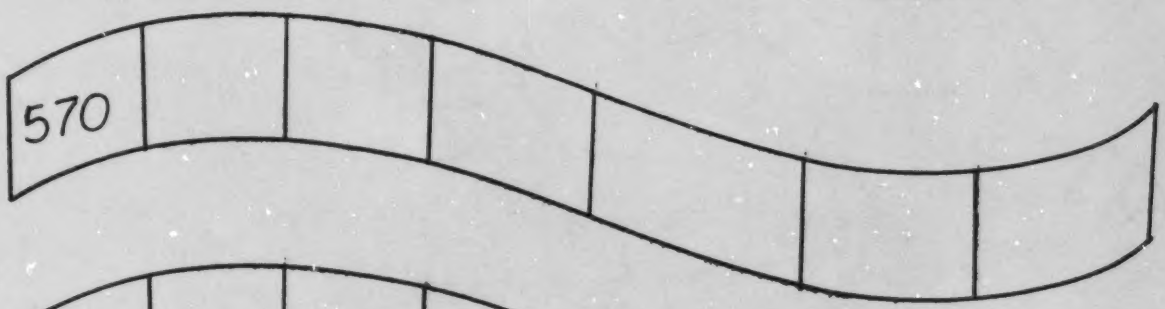
Directions: Fill in the missing numbers counting by tens.

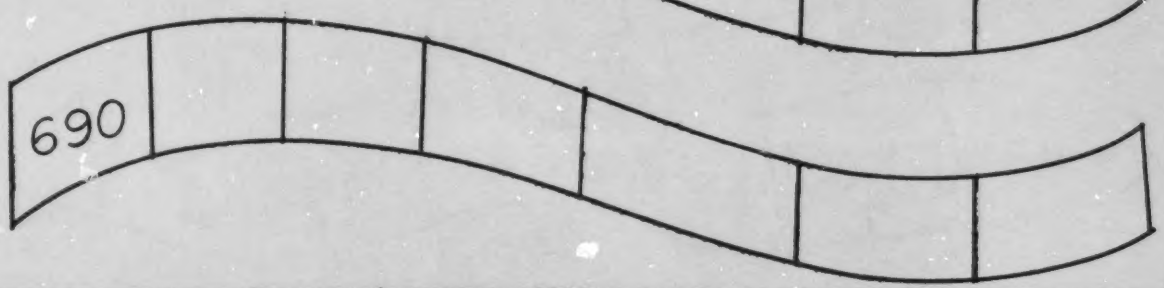
DIRECTIONS: Fill in the missing numbers counting by TENS







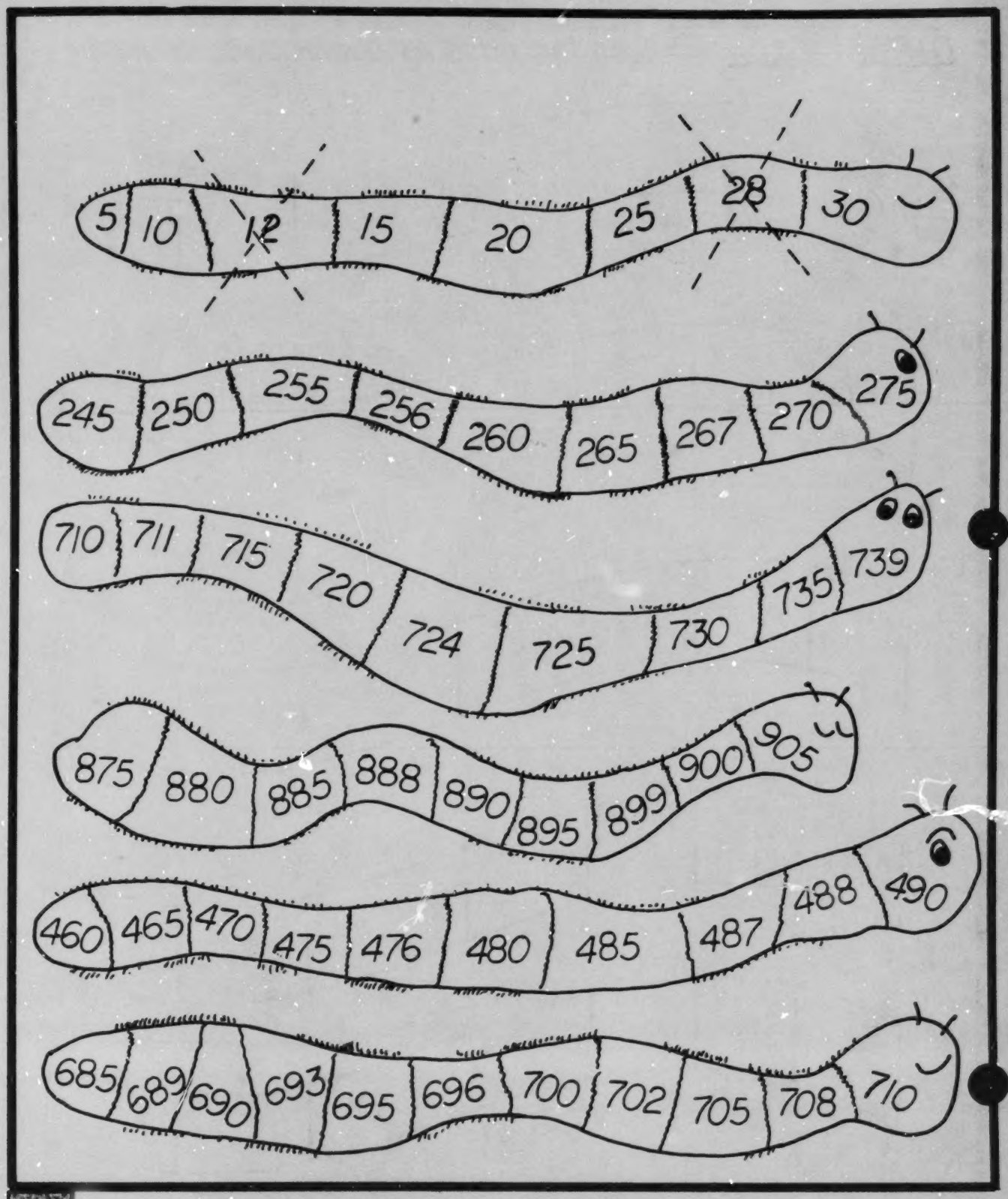




P.O. 2.01.03.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Cross out the numbers that do not belong.
Hint: We're counting by fives.



P.O. 2.01.03.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Can you climb to the top of each staircase by counting up by fives?

45 50 55

570 575

165

890

305

2.01.04 RELATION SYMBOLS =, <, >

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.04.01A compare the numbers from 0 through 1000 using the relation symbol = (equal);
e.g.,

4 = 4, 136 = 136

2.01.04.02A compare numbers 0 through 1000 using the relation symbol > (greater than);
e.g.,

2 > 1
15 ◯ 8
341 ◯ 246

2.01.04.03A compare numbers 0 through 1000 using the relation symbol < (less than);
e.g.,

2 < 3
15 ◯ 18
534 ◯ 782

2.01.04.04A compare two numbers through 1000 using the relation symbols =, <, >.
e.g.,

12 = 12
12 > 11
611 < 612

2.01.04

VOCABULARY

TERMS	SYMBOLS
is equal to	=
is greater than	>
is less than	<

GETTING STARTED

Draw two groups containing eight objects each on the chalkboard. Ask students to count the number in each group. Have one student write the number 8 under one group and another student write the number 8 under the second group. Ask the class to tell what symbol can be used to show these groups are equal. (=) Repeat this procedure, using other examples.

Draw two unequal groups of objects on the chalkboard, e.g., one with nine objects and one with seven objects. Ask students to count the number in each group. Ask a student to write the number for each group. Elicit from the students that the groups are not equal. Repeat the procedure, using other unequal groups.

Prepare two groups of an equal number of objects, e.g., six blocks and six pencils. Ask students to count the number in each group. Write the numbers on the chalkboard. Draw two equal groups of objects above the numbers just written.

e.g.,

Say, "What sign can we use to show that there are the same number of objects in each group?"(=) Ask a student to place the sign between the two numerals written on the chalkboard.

Repeat this procedure, using different numbers of objects.

2.01.04

2.01.04.01 compare numbers from 0 through 1000 using the relation symbol = (equal)

STRATEGY 1: Prepare two sets of 20 cards each, numbered randomly from 0 through 1000. e.g., [200] [200] [7] [7]
Ask one student to choose a card from either set. Ask another student to go to the other set of cards and find the number that is equal. e.g., [212] [212]
The other students in the class must agree that they are equal.

Write on the chalkboard 212 = 212. Continue this procedure until all students have had a chance.

STRATEGY 2: Say, "Mr. Jones has a kennel with 57 dogs. He wants to give each dog a bone. How many bones does Mr. Jones need?" (57) "We will write the number 57 to show the number of dogs and another 57 to show the number of bones." Write the numbers on the chalkboard, e.g., 57 57. Ask, "Who will come up and put the correct sign between the two numbers written on the chalkboard?" Ask the student who places the sign on the chalkboard to read the number sentence.

Repeat this procedure, using other equal groups of objects. Ask students to come to the chalkboard and write corresponding number sentences.

2.01.04.02 compare numbers from 0 through 1000 using the relation symbol > (greater than)

STRATEGY 1: Prepare a number line numbered from 0 through 50. Say, "Today we are going on an airplane trip. We get on the airplane and the pilot announces that there are

STRATEGY 1: cont'd

50 seats on the airplane and 27 passengers. How would we compare the number of seats with the number of passengers?" Point to the number line and show 27. Ask the students to count up to 50. Elicit from the students that the number of seats (50) is greater than the number of passengers (27). Write 50 and 27 on the chalkboard. Introduce the symbol > by writing it between the two numbers. While writing the symbol on the chalkboard say, "50 is greater than 27." Repeat this procedure, using other numbers that are not equal, remembering to say and write the larger number first.

STRATEGY 2:

Prepare strips of colored paper. Be sure to prepare enough for each student to get nine strips.

Write the following on the chalkboard:
164, 827,> . Point to the > symbol. Say, "This symbol means greater than."

Ask the students to choose three strips of paper. Say, "Write 164 on one strip. Write 827 on the second strip and the greater than symbol on the third strip. We are going to make number trains. Which number is greater, 827 or 164?" (827) "Place that strip on your desk and put the greater than symbol to the right of it. Then place 164 to the right of the > symbol. Our train now reads 827 > 164."

Write the following on the chalkboard. e.g.,

512	215	>
100	1000	>

Ask the students to make new math trains using these numbers. Say, "Be sure you put the greater number first when you make your train."

2.01.04.03 compare numbers from 0 through 1000 using the relation symbol < (less than)

STRATEGY 1: Say, "Let's pretend we are going to the park. There will be 29 students at the park and I have only 14 kites. Will every one of us get a kite? How would we compare the number of kites with the number of students?" Elicit from the students that there are fewer (less) kites than students. Introduce the symbol < and write on the chalkboard the number sentence 14 ◯ 29. Write the < in the circle and say, "14 is less than 29."

Repeat this procedure, using other numbers. (Remember to write the smaller number on the left.)

STRATEGY 2: Prepare a floor number line numbered from 125 through 150, individual number lines, chips, and cards with the < symbol. Use the floor tiles or masking tape to make the floor number line.

Ask one student to come to the front of the room and stand on 134. Ask another student to come to the number line and stand on 140. Ask the seated students to use their number lines and put chips on those numbers.

Say, "Since 134 comes before 140 on the number line, we say that 134 is less than 140." Show the less than symbol card. Write 134 < 140 on the chalkboard. Ask a student to read this sentence, take the card, and stand between the two students on the number. Say, "Put your symbol card on your number line? Let's read this sentence together."

Continue this procedure, using other numbers.

2.01.04.04 **compare two numbers from 0 through 1000 using the relation symbols =, >, <**

STRATEGY 1: Place the following numbers on separate 10" x 13" pieces of oaktag: 423, 756, 847, 919, 375, 398, 874, 632, 919, and 216. Write the symbols >, <, = on three separate sheets of oaktag. Place the numbers in two separate piles, with 423, 756, 847, 919, and 375 in the first pile, and 398, 874, 632, 919, and 216 in the second pile. Place the two piles face down on a table in the front of the room. Have a third pile with the symbols face up on the table in the front of the room. Ask one student to choose the first card from the first pile, e.g., 423, turn it over, read it, and stand in the front of the room facing the class. Ask a second student to choose the first card from the second pile, e.g., 398, turn it over, read it, and stand one space apart from the first student. Ask a third student to come to the front of the room and choose the symbol that makes the number sentence true and then stand between the first two students. Elicit from the students that 423 is greater than 398. Write this number sentence (423 > 398) on the chalkboard. Say, "423 is greater than 398."
Repeat this procedure, using all of the cards from each pile.

STRATEGY 2: Write the following on the chalkboard: 784 297. Ask a student to go to the chalkboard to fill in the space with the correct symbol. Have another student read the number sentence.

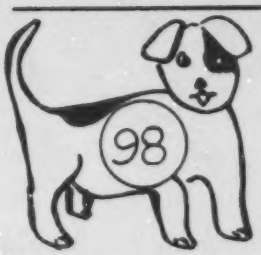
Repeat this procedure, giving numbers where the number on the left is greater than, less than, and equal to the number on the right.

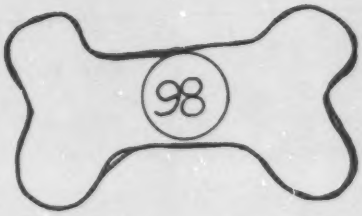
P.O. 2.01.04.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Match the dog number to an equal bone number. Then write the number sentence below.

487 = 487

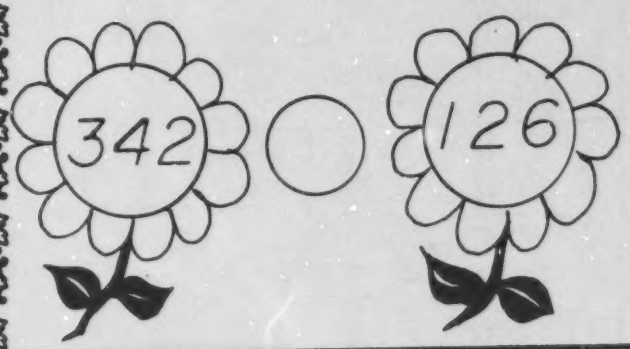


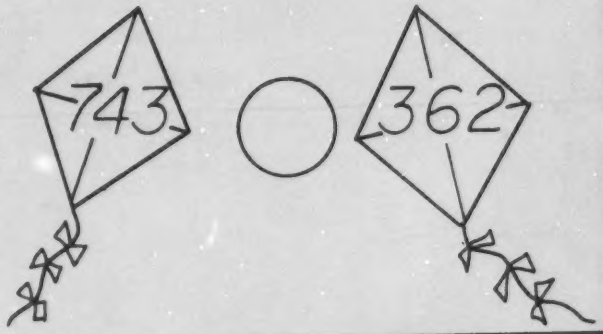


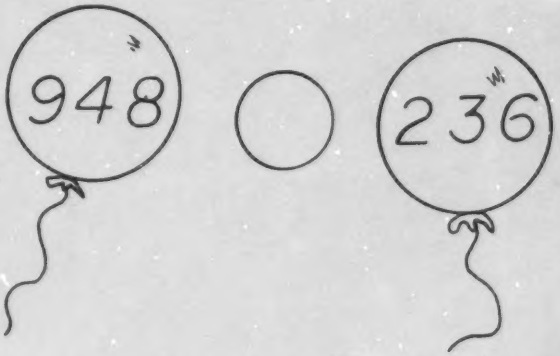
P.O. 2.01.04.02

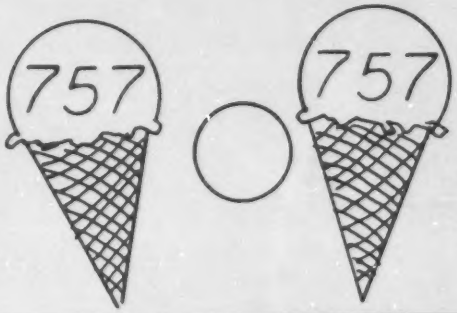
NAME: _____ CLASS: _____ DATE: _____

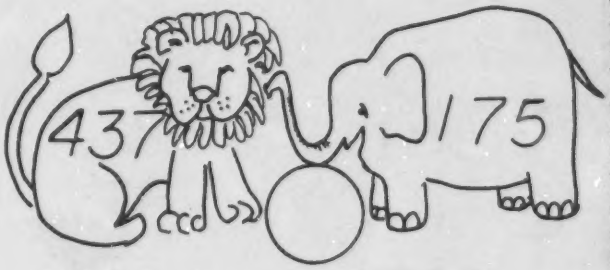
Directions: Write the symbol $>$, $<$, or = in each circle.

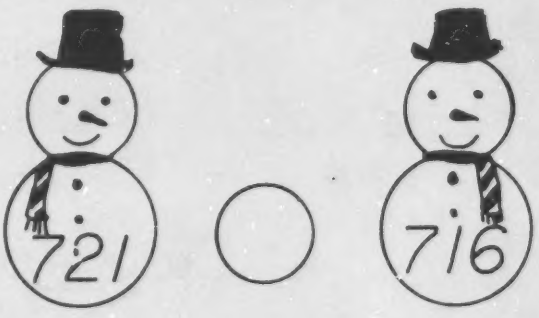








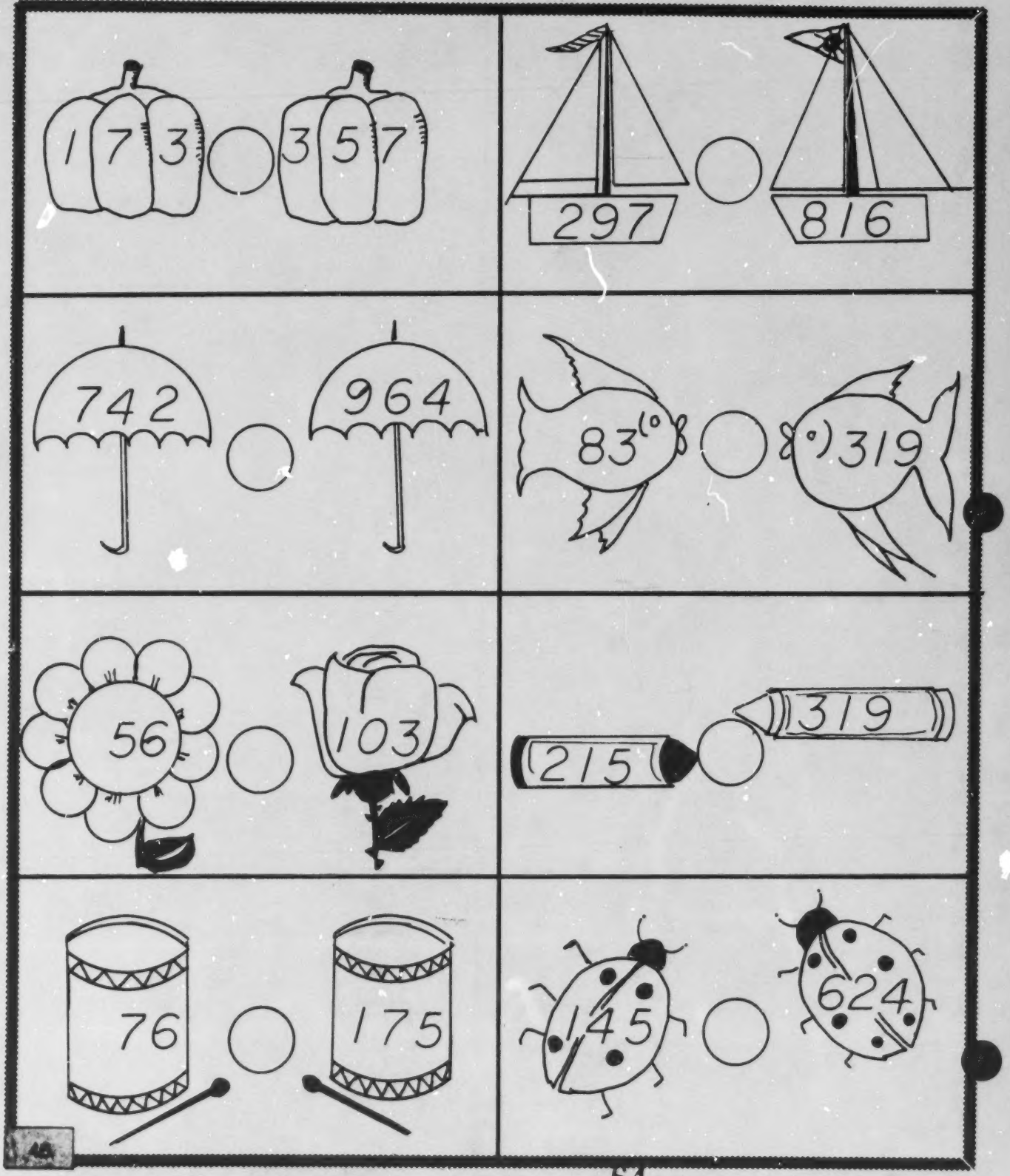




P.O. 2.01.04.03

NAME: _____ CLASS: _____ DATE: _____

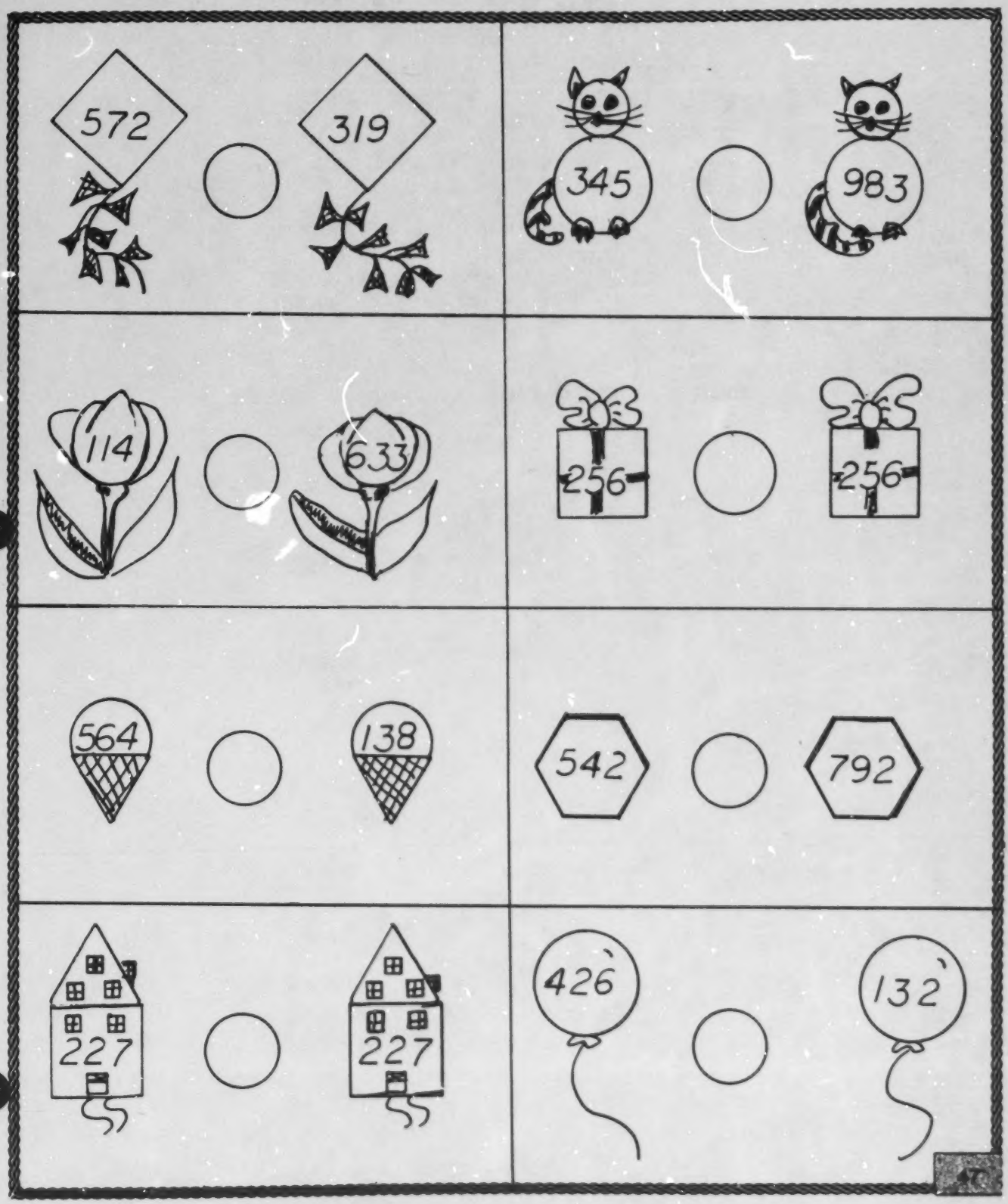
Directions: Write the symbol > (greater than) or < (less than) in each circle.



P.O. 2.01.04.04

NAME: _____ CLASS: _____ DATE: _____

Directions: Write the symbols > (greater than), < (less than, or = (equal to) in each circle.



2.09.01 POINTS, LINES, LINE SEGMENTS, AND RAYS AROUND US

(1 lesson)

PERFORMANCE OBJECTIVES

The student will be able to...

2.09.01.01B recognize points around us;
e.g.,
. point

2.09.01.02B recognize lines around us;
e.g.,
subway track

2.09.01.03B recognize line segments around us;
e.g.,
the side of the desk

2.09.01.04B recognize rays around us.
e.g.,
flashlight beam

2.09.01

VOCABULARY

TERMS

point
line
line segment
ray

GETTING STARTED

Prepare cutouts of a circle, a square, a rectangle, and a triangle. Hold up each shape and ask the students to name the shape and find objects in the classroom that have the same shape. Place each shape on the chalkboard and under each shape write the name of the object having that shape.

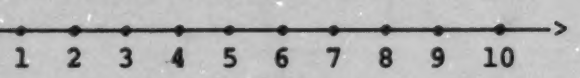
Show the class a piece of colored paper cut into a square; another cut into a triangle, and a third cut into a rectangle. Ask the students to identify each shape. Place points on the chalkboard and ask a student to draw lines to connect the points. Select several students to name the figures drawn.

e.g.,

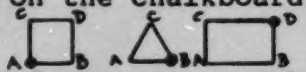
2.09.01 -

2.09.01.01 recognize points around us

STRATEGY 1: On the chalkboard draw a number line,

e.g., 

Ask the students to look at the number line and to say each number. Say, "Who can tell us what is missing on the number line?" (dots) Reinforce the understanding that the dots are called points, and that each point represents a number on the number line. Select students to come up and place the missing points on the number line. Draw the following on the chalkboard:



Ask the students to name the shapes. Say, "Which point is marked on the square, triangle and rectangle?" Ask the students to mark various points on each shape.

STRATEGY 2: Prepare several large dots cut from oaktag and backed with tape. Say, "Today we are going to mark the spot of several objects to show their exact location. Each spot we mark will be called a point. We will use these large dots to mark each point." Choose various objects in the classroom, e.g., easel, window, door, table, library. Call on several students to mark a spot on the object using one of the dots. Designate each dot with a letter of the alphabet. (Each dot should be marked A,B,C ...) Say, "Which object is marked with point D, with point B ...?"

2.09.01.02 recognize lines around us

STRATEGY 1: Draw a picture of railroad tracks on the chalkboard. Say, "Let's look carefully at these railroad tracks. How did I draw these tracks?" (In a straight line) "When you look at these tracks where do they seem to go?" (on and on) Reinforce the understanding that the railroad tracks can go on and on in either direction. Draw the following on the chalkboard:

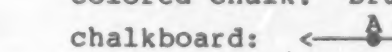
Ask several students to come up and connect the points. Say, "What did you draw?" (lines) "What kind of lines did you draw?" (straight lines) Place arrows in either direction on each line and explain to the students that the arrows are used to show that a line can extend indefinitely in either direction.

STRATEGY 2: Have available a yardstick. Ask a student to pick a number from 1 to 36. Then ask the student to place the yardstick vertically on the chalkboard and mark, with a point, the number he/she chose. Call on another student and elicit another number. Ask the student to mark that number with a point on the chalkboard. Continue until there are a series of points. Ask a student to connect all the points. Say, "What do you see?" (a straight line) Then say, "If I had a bigger chalkboard, could I continue placing more points?" (yes) "Why?" (because a straight line can go on and on in either direction) Place arrows on the line to show that the line can be extended in either direction. For

STRATEGY 2: cont'd — further reinforcement repeat this activity, placing the yardstick on the chalkboard in a horizontal position.

2.09.01.03 recognize line segments around us

STRATEGY 1: Prepare several large dots cut from oaktag backed with tape, and several long pieces of string. Ask several students to mark various spots around the classroom with the dots, e.g., desk, door, easel, reading corner ... Ask the students to determine a path they can take from, e.g., the easel to the reading corner. Use the string to demonstrate the path they would take. (Be sure the path is a straight path.) Explain that the straight path from one point to another can be called a line segment. Repeat the activity, having the students demonstrate various paths they may take from one location to another within the classroom.

STRATEGY 2: Have available a yardstick and various pieces of colored chalk. Draw the following on the chalkboard: 

. Ask the students to explain what they see on the chalkboard. Take a piece of colored chalk and go over the line from point A to point B. Explain that the part of the line (in colored chalk) from point A to point B is called a line segment. Point out that the line segment has 2 end points A and B. Repeat this activity by having students draw lines of various lengths on the chalkboard and marking line segments with the colored chalk on each line.

2.09.01

2.09.01.04 **recognize rays around us**

STRATEGY 1: Have available a flashlight and a picture of a sun. (Be sure that the rays of the sun are showing.)

Darken the classroom and shine the flashlight on the chalkboard. Point out to the students that the light of the flashlight goes in a straight line in one direction. Explain that line segments that go on in one direction are called rays. Repeat this procedure with the picture of the sun. Ask the students to list on a chart objects in the classroom or at home that represent rays.

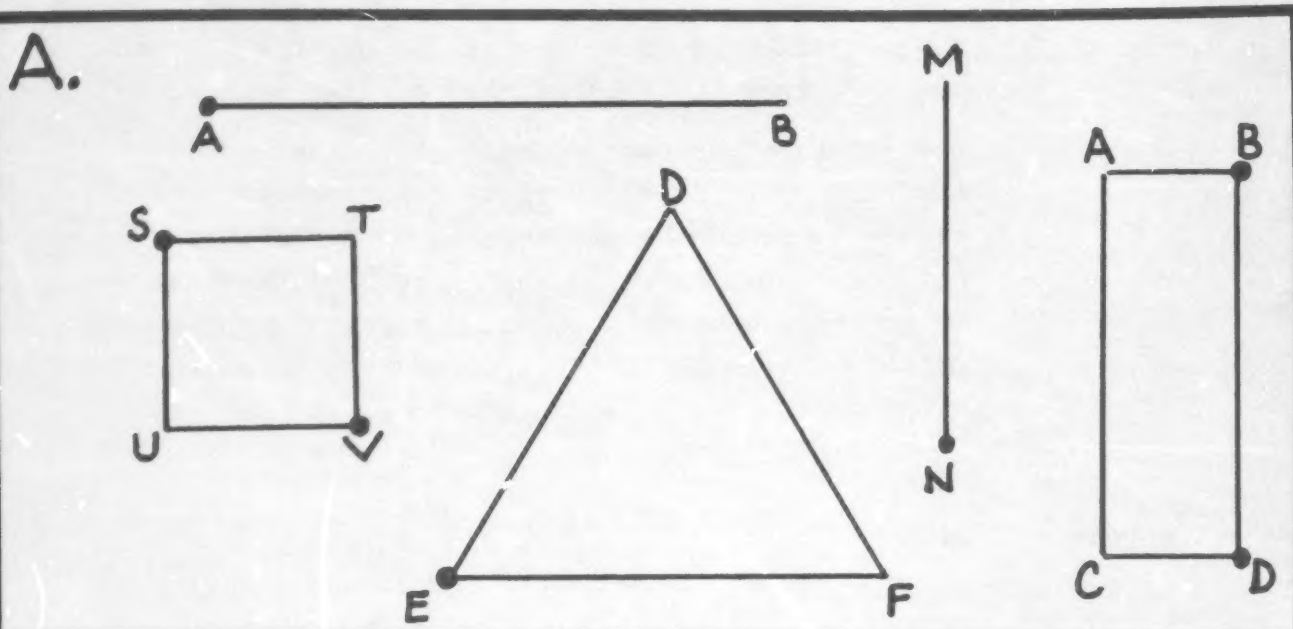
STRATEGY 2: Have available a yardstick and various pieces of colored chalk. Draw on the chalkboard a series of points as follows: • • • • • •
Say, "Who can tell us what I drew on the chalkboard?" (points) Connect the points and place arrows in either direction to show that the line has no end. Say, "What did I draw?" (a line) Now, using a different color chalk make a line segment on the line and ask the students to tell you what you drew. (line segment) Ask a student to come up to the chalkboard and draw a line segment ([or •—•). Using a piece of colored chalk extend that line segment in only one direction as follows: •—•---> . Explain to the students that this extension of a line segment in one direction is called a ray. Demonstrate how a one-way sign ⇨ or an arrow is a good example of a ray. Have the students come up and draw several line segments which can be extended to form rays.

P.O. 2.09.01.01

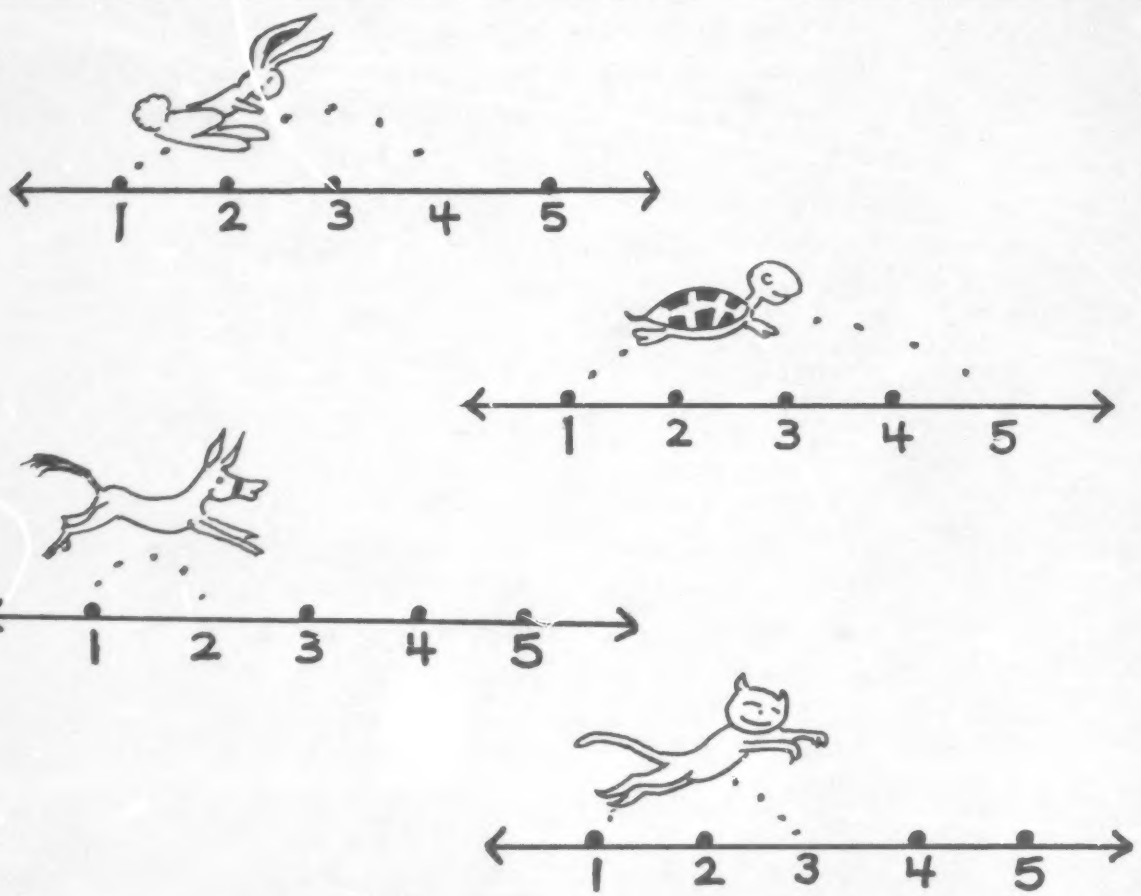
NAME:_____ CLASS:_____ DATE:_____

Directions: A. Mark the missing points next to each letter.
B. Mark the point that shows where each animal will land.

A.



B.

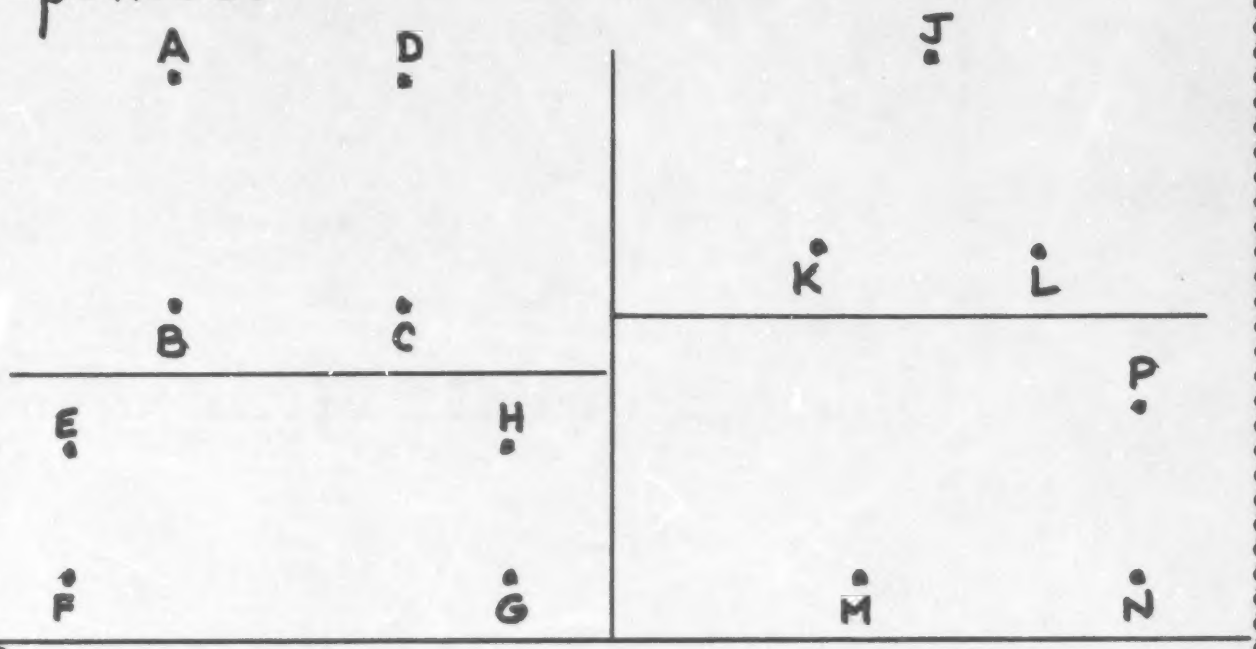


P.O. 2.09.01.02

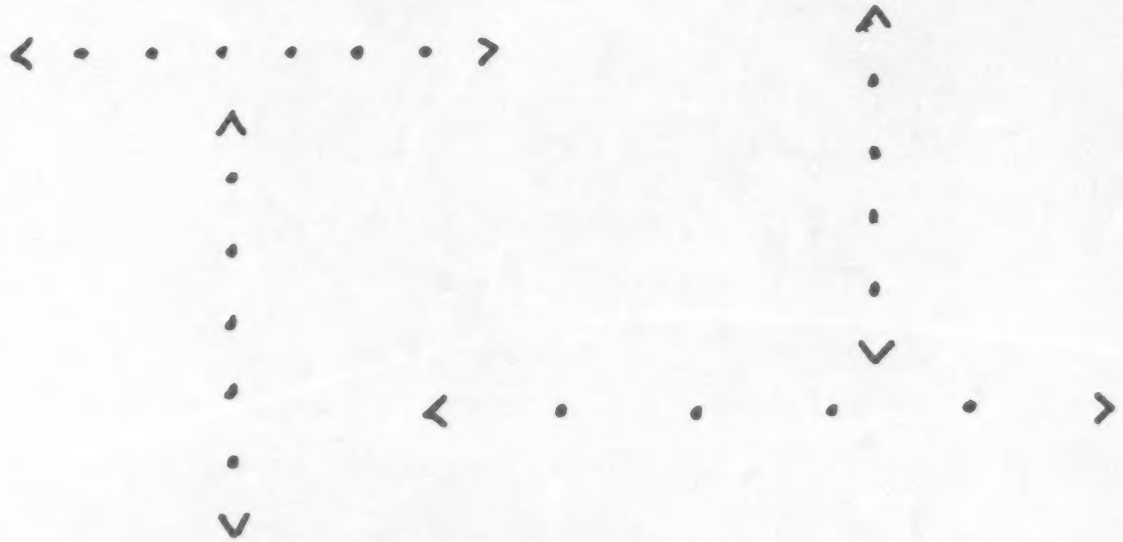
NAME: _____ CLASS: _____ DATE: _____

Directions: A. Complete each figure by connecting the points.
B. Connect the points to make straight lines.

A. Complete each figure by connecting the points.



B. Connect the points to make straight lines.

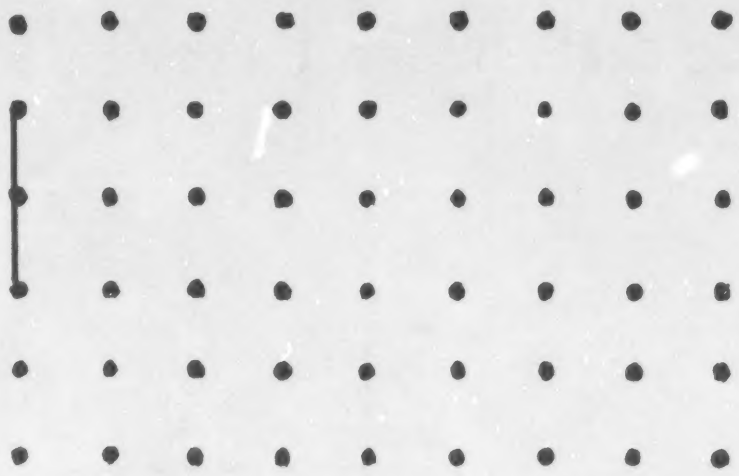


P.O. 2.09.01.03

NAME:_____ CLASS:_____ DATE:_____

Directions: A. Answer the following questions.
B. Draw line segments on each line.

A.



Draw 5 line segments of different lengths.

How many points are touched by the shortest line segment?_____

How many points are touched by the longest line segment?_____

B.

P.O. 2.09.01.04

NAME: _____ CLASS: _____ DATE: _____

Directions: Which figures below represent a line (a), a line segment (b), or a ray (c).

a. line

b. line segment

c. ray

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. R.R. tracks _____

8. BLAST OFF! _____

9. wall, floor, corner of classroom _____

2.14.02 ADDITION AND SUBTRACTION FACTS

(ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

2.14.02.01 recall the addition facts through 18;
e.g.,
10 + 8 = 18 7 + 3 = 10 2 + 8 = 10

2.14.02.02 recall the subtraction facts through 18.
e.g.,
10 - 8 = 2 7 - 3 = 4 18 - 9 = 8

2.14.02

VOCABULARY

TERMS

sum
difference

GETTING STARTED

Ask four girls to stand at one corner of the chalkboard and three boys to stand at the other corner of the chalkboard. Elicit from the class that you have four girls and three boys standing separately in front of the classroom. Write the numerals 4 and 3 on the chalkboard. Ask both the girls and the boys to stand together in the center of the chalkboard. Elicit from the class that there is now only one group of children. Ask, "How many boys and girls are there in all?" At this point, put a + (plus) sign between the 4 and 3 on the chalkboard and complete the math sentence 4 + 3 = 7. Ask a volunteer to read the sentence. Reinforce that when we want to join, or put things together, we add. Tell the students that 7 is the sum of the addition problem 4 + 3.

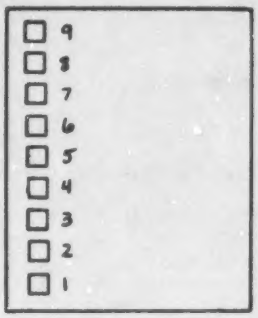
Distribute about ten raisins to each student. Say, "I have just given you some very tasty fruit. If you've never had this fruit, I'll tell you that this fruit is called a raisin." Ask the students to count out four of the raisins and write the numeral 4 on the chalkboard. Say, "Now you may take one away and eat it." Write 1 on the chalkboard and say, "How many raisins do you have left?" (3) Complete the math sentence (4 - 1 = 3) by placing a minus sign between the 4 and 1 and putting = 3. Say, "Count six raisins and put them in a row. Take away three and eat them." Write on the chalkboard, 6 - 3 and ask, "How many raisins do you have left?" (3) Complete the math sentence 6 - 3 = 3. Reinforce that when we take things away from a group, we are subtracting. When we subtract, we find the difference.

2.14.02

2.14.02.01 **the student will be able to recall addition facts through 18**

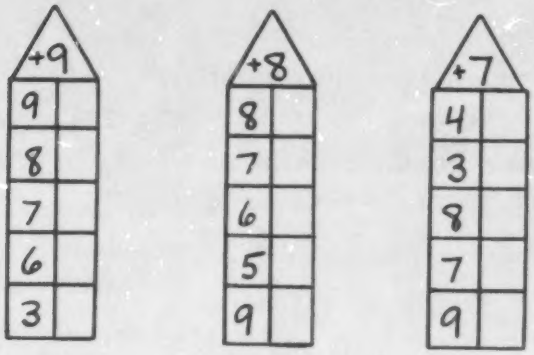
STRATEGY 1: Draw a picture of an office or apartment building on a piece of oaktag. Make a column of nine windows and floors and label the floor with the numbers 1 through 9.

e.g.



Say, "I want to see if any of you can climb to the top of this building. You have to get from floor to floor by adding nine to each number." e.g. 1+9=10, 2+9=11,.... Ask a volunteer to come up to the chalkboard and try to reach the top. When he reaches the top he can call on a friend to come down the building in the same way of adding nine to each number. When several students have done this successfully, play a game with the students called Add Nine. Write the numbers 1...9 on number cards. Then divide the class into two teams. Shuffle the cards, pick one, and say the number. The first student on Team 1 must add nine to that number and give the sum. If the sum is correct, his/her team gets a point. Do this so all students get a chance. The winners will have the most points. Continue this procedure for other number facts.

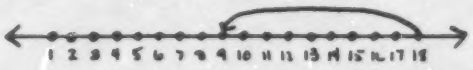
STRATEGY 2: Prepare a flannelboard with cutouts of dots and a beadboard for each student. Display two sets of dots on the flannelboard, e.g., 9+5. Say, "Use your beadboards to put together 9+5. What is the sum of 9+5?" (14) Next put the two sets 8+8 on the flannelboard and say, "Use your beadboards to put together 8+8. What is the sum of 8+8?" (16) Repeat this procedure for a few more addition problems. Reinforce with the class that when we add we always find a sum. To finish the lesson put the following types of tables on the chalkboard and ask the students to complete the tables. The students should be encouraged to use their beadboards only if they need them.



2.14.02.02 the student will be able to recall subtraction facts through 18

STRATEGY 1: Draw a numberline on the floor or the chalkboard numbered 1...18. Draw a little bumblebee on the board.

Say, "Mr. Bee loves honey. He flies around the numberline all day looking for it. When he finds some honey he eats it as fast as he can. Mr. Bee started buzzing on number 18 and he flew back five spaces. Do you know what number he landed on?" Write on the chalkboard 18-5=☐ . Ask a student for the answer. (18 - 5 = 13) Ask the student to draw a curved arrow from 18 to 13. Erase the arrow and say, " Another day things weren't so easy for Mr. Bee. He had to fly back nine spaces to find some honey. Show 18-9 on the number line and write the math sentence on the board.



Ask, "Do you know where he landed this time?" (9) Complete the math sentence 18-9=9. Repeat this procedure with several more subtraction examples. Elicit from the students that when we subtract we find a difference.

STRATEGY 2: Prepare chips or counting objects. Prepare several worksheets that have the numbers 1 through 18, but vary the order of the numbers on each.
e.g.,

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18

18	6	11
4	16	13
9	2	14
15	12	1
10	3	17
7	8	5

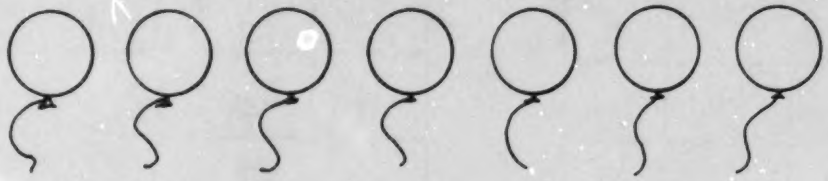
Say, "We are going to play a game. I will say a subtraction fact and you will use your chips to find the answer. When you think you have the answer put an X on that number on your worksheet. The first one to get six numbers in a row will be the winner." Start with an example like 18-3=☐. Encourage the students to use their chips if they need them. Continue with other examples.
e.g.,
18-7=☐, 18-9=☐, 17-3=☐, 16-4=☐, 12-5=☐, 9-8=☐.

P.O. 2.14.02.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Complete the examples to find the sums.

How many more will make 18? Draw them.



7 + ___ = 18

How many more will make 18? Draw them.

11 + ___ = 18

How many more will make 18? Draw them.

12 + ___ = 18

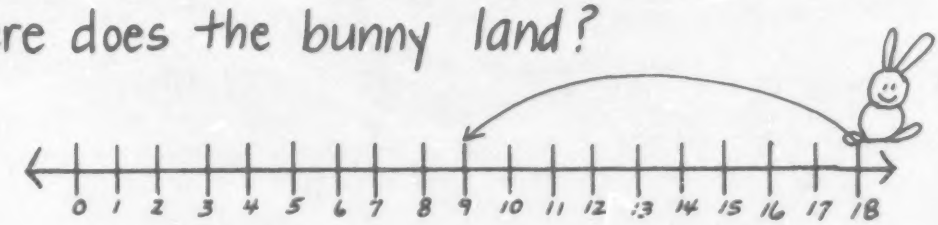
7 + 8	9 + 4	8 + 8	5 + 9	8 + 9
7 + 7	3 + 9	9 + 2	8 + 6	9 + 9

P.O. 2.14.02.02

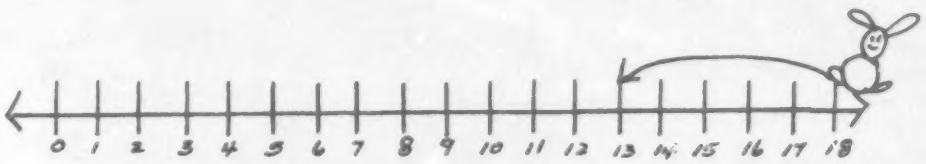
NAME: _____ CLASS: _____ DATE: _____

Directions: Find the difference.

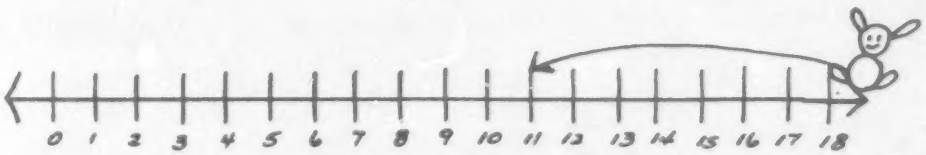
Where does the bunny land?



18 - 9 = ☐



18 - 5 = ☐



18 - 7 = ☐

Find the difference.

18 - 9	12 - 5	17 - 9	11 - 4	18 - 6
14 - 9	15 - 8	14 - 7	13 - 6	16 - 7

2.11.01 OPEN SENTENCES

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

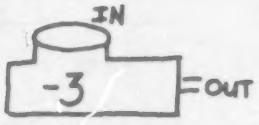
2.11.01.01A identify an open sentence;

e.g.,

□ + 3 = 14	□ - 5 = 10
14 = □ + 3	15 - □ = 10
3 + □ = 14	10 = □ - 5
11 + 3 = □	15 - 10 = □

2.11.01.02B use tables to show number relationships;

e.g.,



IN	20	19	18
OUT	17	16	15

2.11.01.03B use place holders to identify patterns of sums and differences.

e.g.,

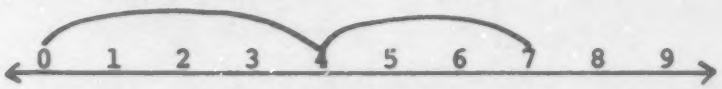
□	△
0	7
1	6
2	5
3	4

□	△
7	0
8	1
9	2

GETTING STARTED

Use a flannelboard to show two sets such as 4 dogs + 3 dogs. Join the sets together to make a new set. Say, "4 + 3 = 7 is a number sentence that shows the joining of four dogs and three dogs." Display other addition situations on the flannelboard and ask the students to make up number sentences.

Draw a number line on the chalkboard. Have a little bumblebee buzzing around to look for honey. He usually makes his hunt in two stops.



Starting at zero, first land on four and then land on seven. These two jumps can be described with a number sentence 4 + 3 = 7. Repeat this procedure.

2.11.01

2.11.01.01 identify an open sentence;

STRATEGY 1: Display an egg carton and fill each compartment with blocks until nine blocks are in the egg carton. Say, "There are nine blocks in this egg carton." Write the number 9 on the chalkboard. Say, "How many more blocks are needed to fill the egg carton?" Write the following on the chalkboard: 9+□=12. Ask a student to complete the sentence. If there is difficulty add one block at a time until you get to three. Ask "Can anyone think of a different way to answer this question?" Elicit from the students that you can subtract nine from 12 to get three. Write the following on the chalkboard: 12-9=□.

Repeat this procedure with similar problems.

STRATEGY 2: Make a beadboard with 20 beads for each student in your class. On the chalkboard write the open number sentence 7 + □ = 11. Ask the students to count out seven beads. Say, "How many more beads are needed to make 11 beads?" Count your beads until you get to eleven." Now we can complete the number sentence on the chalkboard by replacing the box with the number 4. Provide practice with other open sentences for addition.

Ask the students to count out 14 beads. Say, "Take away enough beads so that you are left with six beads." Write on the chalkboard 14 - □ = 6. Ask, "How many beads did you remove? (8) Now we can complete the number sentence on the chalkboard by replacing the box with the number 8." Repeat this same procedure for additional practice.

2.11.01

2.11.01.02 use tables to show number relationships

STRATEGY 1: Draw an outline of a henhouse on oaktag or chart paper. Label the henhouse and put a -3 in it. Next to the henhouse put an in row and an out row. e.g.,

Henhouse	in	7	9	10	12	14
-3	out			7	9	11

Say, "One week a fox got into the henhouse. Mr. Farmer didn't know, and on Monday he put 14 hens in the henhouse and that night only 11 came out. The next day he was puzzled, so he only put 12 hens into the henhouse. That night only nine came out. Mr. Farmer was very upset. Mr. Fox was very happy. You see, Mr. Fox knew how to hide himself from Mr. Farmer. This went on for three more days until Mr. Farmer caught Mr. Fox. Do you think you could finish the chart? Remember, how many hens could Mr. Fox eat each day?" (three) Select a student to finish the chart.

STRATEGY 2: Make worksheets of a function machine for each student in the class. Draw the following on the chalkboard:

(Worksheet to look the same as boardwork)

+6

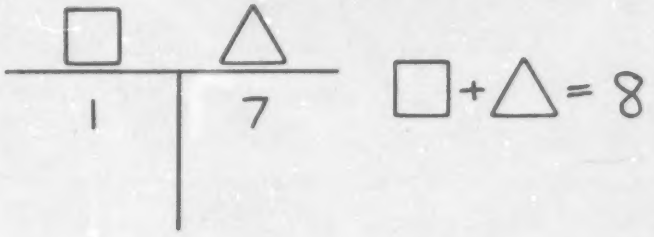
in	4	6	5	7	9
out					

Distribute counting chips or beadboards to each student. Elicit from the students that you must add six to whatever goes into the machine. Allow the students to use counting objects if they need them to complete the tables.

2.11.01

2.11.01.03 **use place holders to identify patterns of sums and differences**

STRATEGY 1: Distribute counting chips to each student. Write the following on the chalkboard: □ +△=8. Say, "Today we are going to play 'Guess My Rule.' Each of you is going to have to find as many combinations of eight as you can think of. Then we will take turns reading our combinations. The person who says the one I am thinking of first is the winner." Draw a chart on the chalkboard as follows:



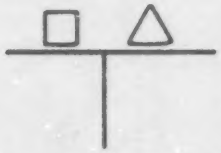
Do the first one with the students. Encourage the students to use their chips if needed. Write a combination for eight and then ask the students to call out their combinations. The first one to call out the one you have written is the winner. Then put the table on the chalkboard in reverse.

□	△
7	5
5	3
6	4
9	7

Ask the students if they can find a rule for all the △ numbers. Then help them with this math sentence: □ -2=△ . Fill in the sentence with the first choice 7-2=5 Let the students finish the rest of the chart.

STRATEGY 2: On the chalkboard write the following:

□ = 1, 3, 5, 7, 9 △ = 0, 2, 4, 6, 8



□ + △ < 10

Say, "You are going to arrange all the △ numbers and the □ numbers so that they can make the open sentence □ + △ < 10 true. When the students are finished, complete the chart on the chalkboard. Next, write on the chalkboard:

□ = 16, 7, 8, 9, 1, 2

△ = 10, 11, 4, 3, 5, 6

Write the sentence □ + △ = 12. Ask the students to write combinations of □ numbers and △ numbers to make □ + △ = 12 true.

P.O. 2.11.01.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Write a math sentence to go with the problem.

1. Tom had 8 blocks in his box. His brother put 9 more into his box. How many blocks does Tom have now?

_____

2. There are 9 boys on the baseball team. Today only 3 of the boys are here. How many are absent?

_____

3. The grocer ordered 12 cartons of milk in the morning. By lunch time he had only 6 cartons left. How many were sold?

_____

4. Marie has 14 baby dolls. She gave 8 of them to her sister. How many does she have left?

_____

P.O. 2.11.01.02

NAME:_____ CLASS:_____ DATE:_____

Finish each function machine..

+7	IN	7	8	9	6
	OUT				

-8	IN	18	16	14	15
	OUT				

+9	IN	2	4	6	7
	OUT				

+10	IN	4	7	5	3
	OUT				

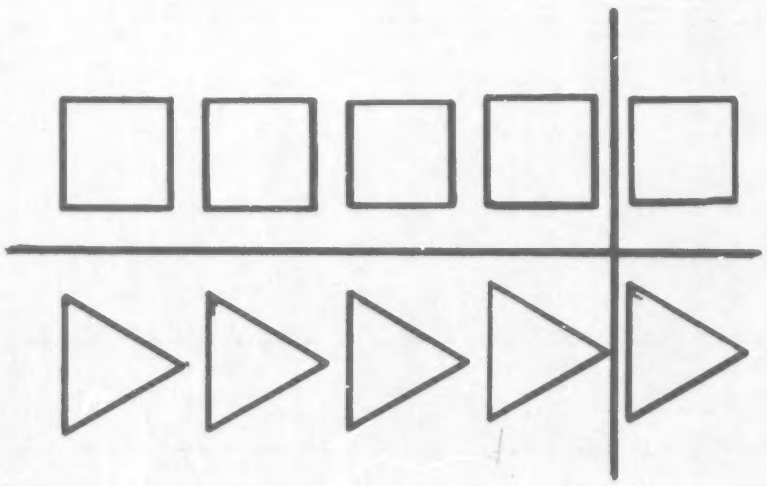
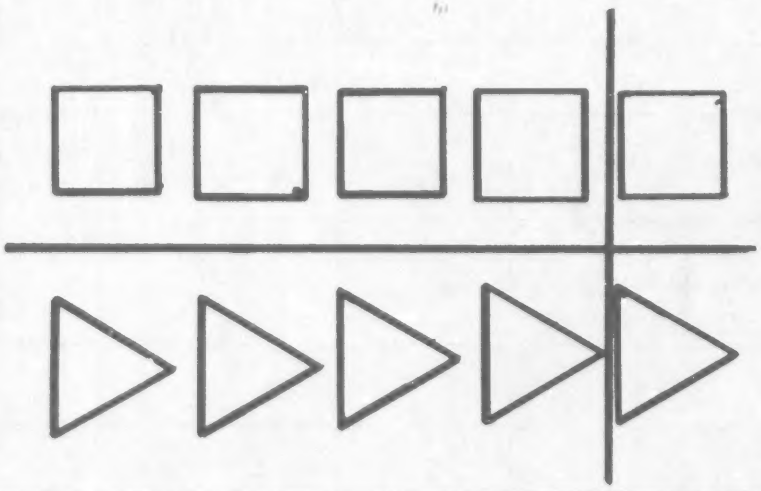
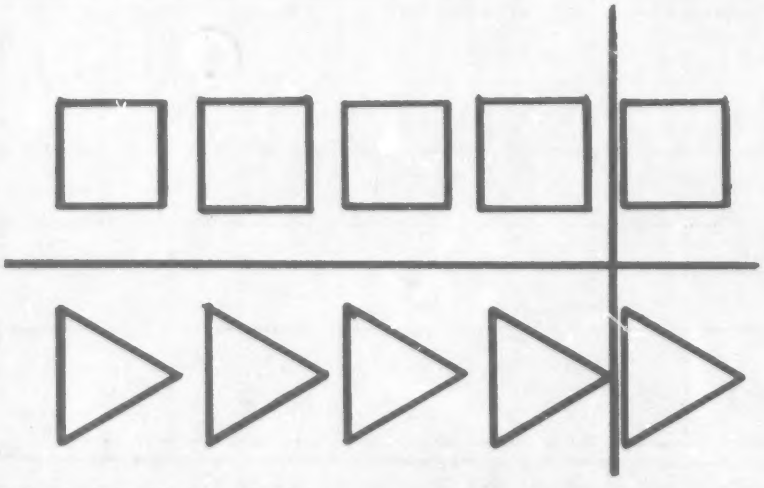
-2	IN	12	18	16	14
	OUT				

P.O. 2.11.01.03

NAME:_____ CLASS:_____ DATE:_____

92

Directions: Use the numbers given to fill in the chart.

□ = 1,2,3,4,5,6 △ = 7,8,9,10,11	□ = 3,4,9,2,1 △ = 7,8,6,12,10	□ = 1,3,5,7,9 △ = 0,2,4,6,8
□ + △ = 12	□ + △ < 15	□ + △ < 10
		

93

2.01.05 PLACE VALUE THROUGH 999

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.05.01A identify the place value of any digit in a numeral less than 1000;
e.g.,

	Hundreds	Tens	Ones
497	4	9	7
36		3	6

2.01.05.02B write a given numeral in expanded form;
e.g.,
497 = 4 hundreds + 9 tens + 7 ones

2.01.05.03A write a numeral given in its expanded form.
e.g.,
4 hundreds + 9 tens + 7 ones = 497

2.01.05

VOCABULARY

TERMS

digit
expanded
numeral

GETTING STARTED

Ask three students to go to the chalkboard. Recite any two- or three- digit numbers. Ask the students to write the numerals on the chalkboard.

Ask these students to select three other students to take their places at the chalkboard. Continue this procedure until everyone has had a chance to go to the chalkboard and write a numeral.

Prepare individual sticks, bundles of ten sticks, and bundles of one hundred sticks. Label the tens and hundreds bundles "ten" and "one hundred."

Ask a student to count ten sticks.
Ask a student to count 40 sticks.
Ask a student to count 700 sticks.

Variation: Ask a student to choose a number from 1-9, or 10-90 by tens, or 100-900 by hundreds. Have that student then select another student to go to the bundles and count the proper number of sticks.

2.01.05.01 identify the place value of any digit in a numeral less than 1000

STRATEGY 1: Display three boxes in the front of the room. Label each box.
e.g.,

Hundreds Tens Ones

Place 10 hundreds squares, 10 tens strips and 10 ones pieces in the appropriate boxes.

Label three desks (or any other useful places) hundreds, tens, and ones.

Ask a student to say any two- or three-digit number. Ask another student to go to the boxes and take the proper number of ones pieces and place them on the appropriate desk. He/she then calls on another student, who goes to the boxes to take the proper number of tens and places them on the appropriate desk. He/she then calls on another student (if necessary) to go to the boxes for the proper number of hundreds and to place them on the appropriate desk.

Repeat this procedure, using different numbers.

Variation: The first student called may have the option of going to either the hundreds, tens, or ones box. The second student has a choice of the remaining two boxes.

STRATEGY 2: Label three columns on the chalkboard as follows:

Hundreds Tens Ones

Write a two- or three-digit number on the chalkboard to the side of these columns. Ask a

STRATEGY 2: cont'd

student to come to the chalkboard and write in the ones column the ones digit that is in the numeral written on the chalkboard. Ask the student to call upon another student to come to the chalkboard and write in the tens column the tens digit in the displayed numeral. If necessary, repeat this procedure for the hundreds column.

Variation 1: Give the students the choice of going to any column and writing the appropriate digit from the displayed numbers.

Variation 2: Recite the number, but do not write it on the chalkboard. Repeat the procedure, asking students to come to the chalkboard to write the recited digits in the appropriate columns.

2.01.05.02 write a given numeral in its expanded form

STRATEGY 1: Write the following on the chalkboard:

a) 426 = 4 hundreds + 2 tens + 6 ones = 400 + 20 + 6

b) 78 = 7 tens + 8 ones = 70 + 8

Read and explain the above. Tell the students to copy c, d, e, f, g into their notebooks and to fill in the blank spaces.

c) 159 = __ hundreds + __ tens + __ ones = __ + __ + __

d) 617 = __ hundreds + __ tens + __ ones + __ + __ + __

e) 89 = __ tens + __ ones = __ + __

f) 250 = __ hundreds + __ tens + __ ones = __ + __ + __

g) 902 = __ hundreds + __ tens + __ ones = __ + __ + __

Call upon students to come to the chalkboard to fill in the blank spaces.

2.01.05

STRATEGY 2: Write the following on the chalkboard:

	Hundreds	Tens	Ones
=	__ hundreds	+ __ tens	+ __ ones
=	☐	☐	☐

Ask a student to write a two- or three-digit number in the large box drawn on the chalkboard.

e.g.,

328

Ask another student to fill in the place value chart on the chalkboard.

e.g.,

Hundreds	Tens	Ones
3	2	8

Ask two students to write the given numeral in its expanded form.

e.g.,

328 = 3 hundreds + 2 tens + 8 ones

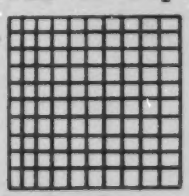
= 300 + 20 + 8

Repeat this procedure, selecting a different numeral for the large box.

2.01.05.03 **write a numeral given in its expanded form**

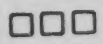
STRATEGY 1: Draw a place value chart on the chalkboard. Use squared material to represent any three-digit numeral.

e.g.,



1 hundred

2 tens



3 ones

STRATEGY 1: cont'd

Ask a student how many hundreds, tens, and ones are shown. Ask a student to fill in the place value chart at the chalkboard.

e.g.,

hundreds	tens	ones
1	2	3

Ask another student to write the number in expanded form.

e.g., 1 hundreds + 2 tens + 3 ones

Ask another student if he/she can write the number in its expanded form in a different way.

e.g., 100 + 20 + 3

Say, "What number does this represent?"

Ask a student to write the number.

e.g., 123

Repeat this procedure, using other two- or three-digit numbers.

STRATEGY 2: Write a numeral in its expanded form.

e.g., 300 + 50 + 2

Ask a student to come to the chalkboard and write the number. Write another numeral in its expanded form, and tell the student to call on someone else to do the next problem. Variation: Ask a student to place the number on the chalkboard in its expanded form and to select another student to write the number.

Repeat this procedure, using a different number.

P.O. 2.01.05.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill in the place value charts.
Match the number to a face and draw a smile.

256

Hundreds	Tens	Ones

438

Hundreds	Tens	Ones

709

Hundreds	Tens	Ones

19

Hundreds	Tens	Ones

380

Hundreds	Tens	Ones

556

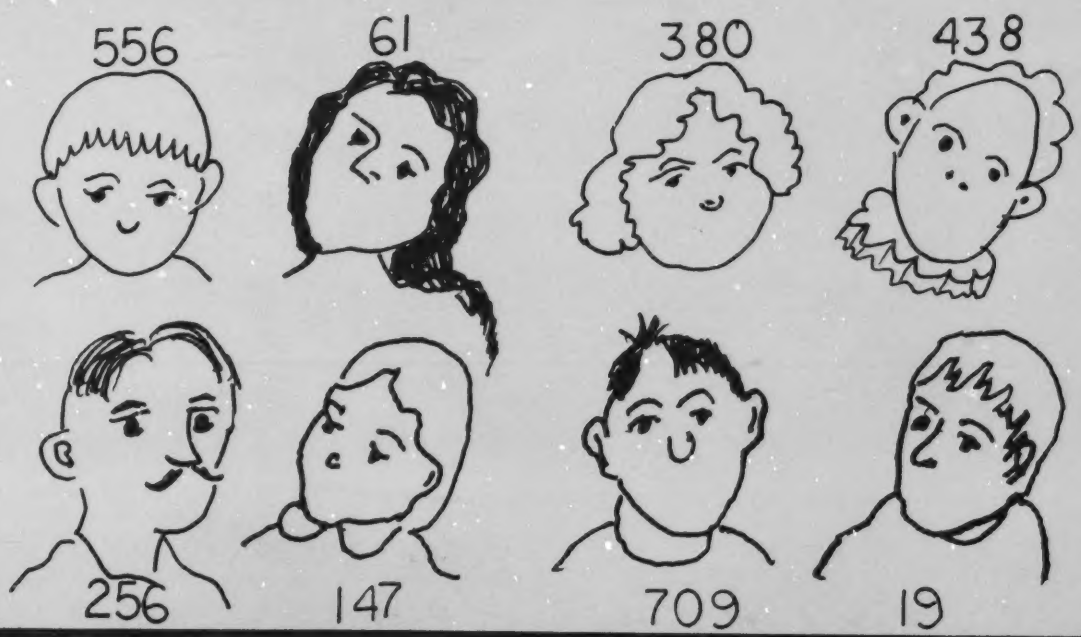
Hundreds	Tens	Ones

61

Hundreds	Tens	Ones

147

Hundreds	Tens	Ones

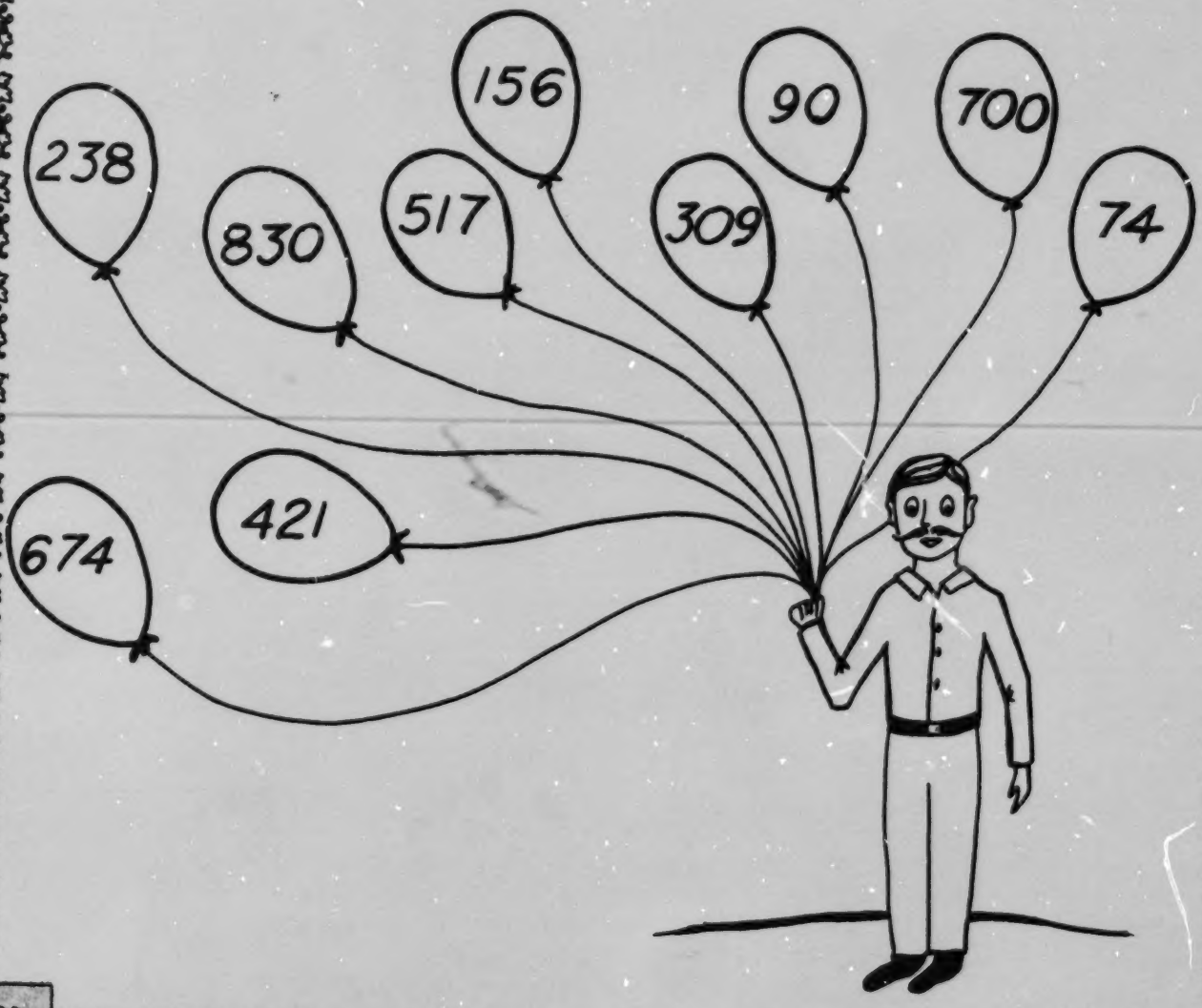


P.O. 2.01.05.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill in the blank spaces. Color each balloon as you finish each problem.

1. 156 = 100 + 50 + ___
2. 238 = 200 + ___ + ___
3. 674 = 600 + ___ + ___
4. 517 = ___ + ___ + ___
5. 74 = ___ + ___
6. 309 = ___ + ___ + ___
7. 830 = ___ + ___ + ___
8. 421 = ___ + ___ + ___
9. 700 = ___ + ___ + ___
10. 90 = ___ + ___

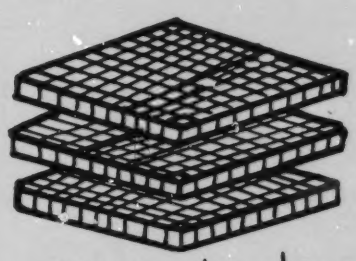


82

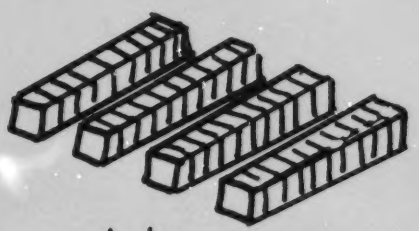
P.O. 2.01.05.03

NAME:_____ CLASS:_____ DATE:_____

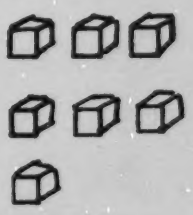
Directions: Write the standard numeral in the blank space. Then count down to "blast-off" by crossing out each example you finish.



3 hundreds



4 tens



7 ones

300 + 40 + 7 = 347

10. 200 + 50 + 6 = _____ 9. 700 + 20 + 9 = _____

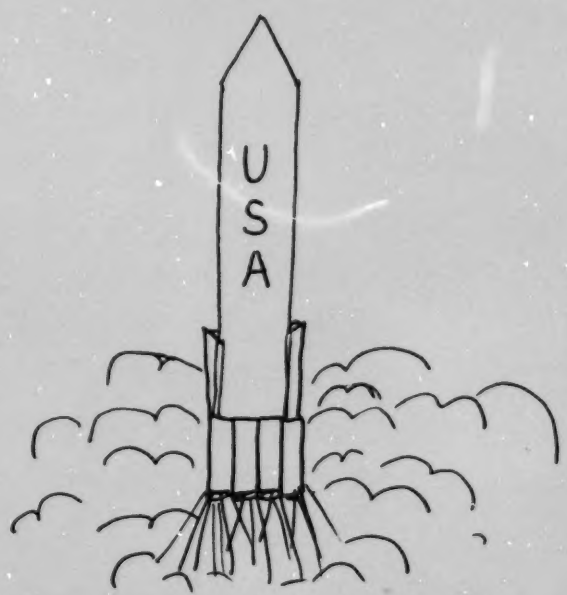
8. 500 + 90 + 1 = _____ 7. 100 + 10 + 8 = _____

6. 800 + 30 + 5 = _____ 5. 40 + 2 = _____

4. 600 + 3 = _____ 3. 300 + 70 = _____

2. 400 + 60 + 4 = _____ 1. 900 + 80 + 7 = _____

10
9
8
7
6
5
4
3
2
1
Blastoff



83

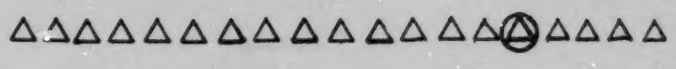
2.01.06 ORDINAL NUMBERS TENTH THROUGH THIRTY-FIRST

(1 lesson)

PERFORMANCE OBJECTIVES

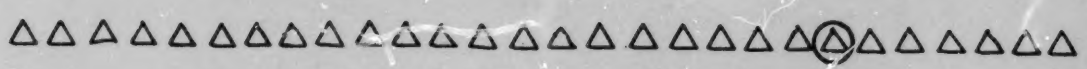
The student will be able to...

2.01.06.01B identify the ordinal position of each object in a row through 20 objects; e.g.,



15th from the left

2.01.06.02B identify the ordinal position of each object in a row through 31 objects. e.g.,



22nd from the left

2.01.06

VOCABULARY

TERMS

tenth	eighteenth	twenty-sixth
eleventh	nineteenth	twenty-seventh
twelfth	twentieth	twenty-eighth
thirteenth	twenty-first	twenty-ninth
fourteenth	twenty-second	thirtieth
fifteenth	twenty-third	thirty-first
sixteenth	twenty-fourth	
seventeenth	twenty-fifth	

GETTING STARTED

Using experience chart paper, write the ordinal numbers "first" through "ninth." Ask the students to say each number. Ask nine students to come to the front of the room and stand in a line. Say, "Who is the first, second... in the line?" Ask where a specific child is standing in the row, e.g., "Is John first in the line? Who is sixth in the line?"

Prepare nine circles of different colors, e.g., red, brown, green, yellow... Tape the circles to magnetic discs and place them in a cluster on the chalkboard. Ask the students to place these discs in a row. Say, "Place the yellow circle first, the red circle second..." When the row is complete, ask for the locations of each color, e.g., "Where is the blue circle?"

Have the students change the positions of the circles, e.g., place the red circle first, the green circle second...

2.01.06

2.01.06.01 identify the ordinal position of each object in a row through 20 objects

STRATEGY 1: Using oaktag letters of the alphabet (or print capital letters on the chalkboard), place the letters A through T on the chalkboard in a row. Ask, "Where is the letter J?" Have a student identify J as the tenth letter in the row.

Continue this procedure until the positions of all of the letters on the chalkboard have been identified. Ask the students to tell, as a group, the position of all of the letters.

STRATEGY 2: Draw twenty circles on the chalkboard. Say, "Who can put an x inside the tenth circle?" Before the student places an x inside the correct circle, he/she will count first, second, ... until he/she finds the tenth circle from the left end.

Repeat this procedure for ten more circles, e.g., fifth circle, eleventh circle. Ask, "Can you name the circles in which there are no x's?"

2.01.06.02 identify the ordinal position of each object in a row through 31 objects

STRATEGY 1: Have ten students stand in a line in front of the classroom. Ask each student to count out loud his/her ordinal position in the line, e.g., first, second,...tenth. Say to the students in the line, "Will everyone except the tenth person please sit down." (Give the tenth student an oaktag card with "tenth" written on it to hold up as a reminder to

STRATEGY 1: cont'd

the class what number the line begins with in the next activity. (Have "twentieth" written on the reverse side for later use.) Ask ten other students to stand in line to the right of the student holding the oaktag reading "tenth." Ask each student to say out loud his/her ordinal position in the line, e.g., tenth, eleventh, twelfth, ...twentieth. Say, "Will everyone except the twentieth person sit down." Have the twentieth student hold the oaktag card with "twentieth" now facing the class. Ask 11 more students to stand in line and have them say their positions, e.g., twentieth, twenty-first, ...thirty-first.

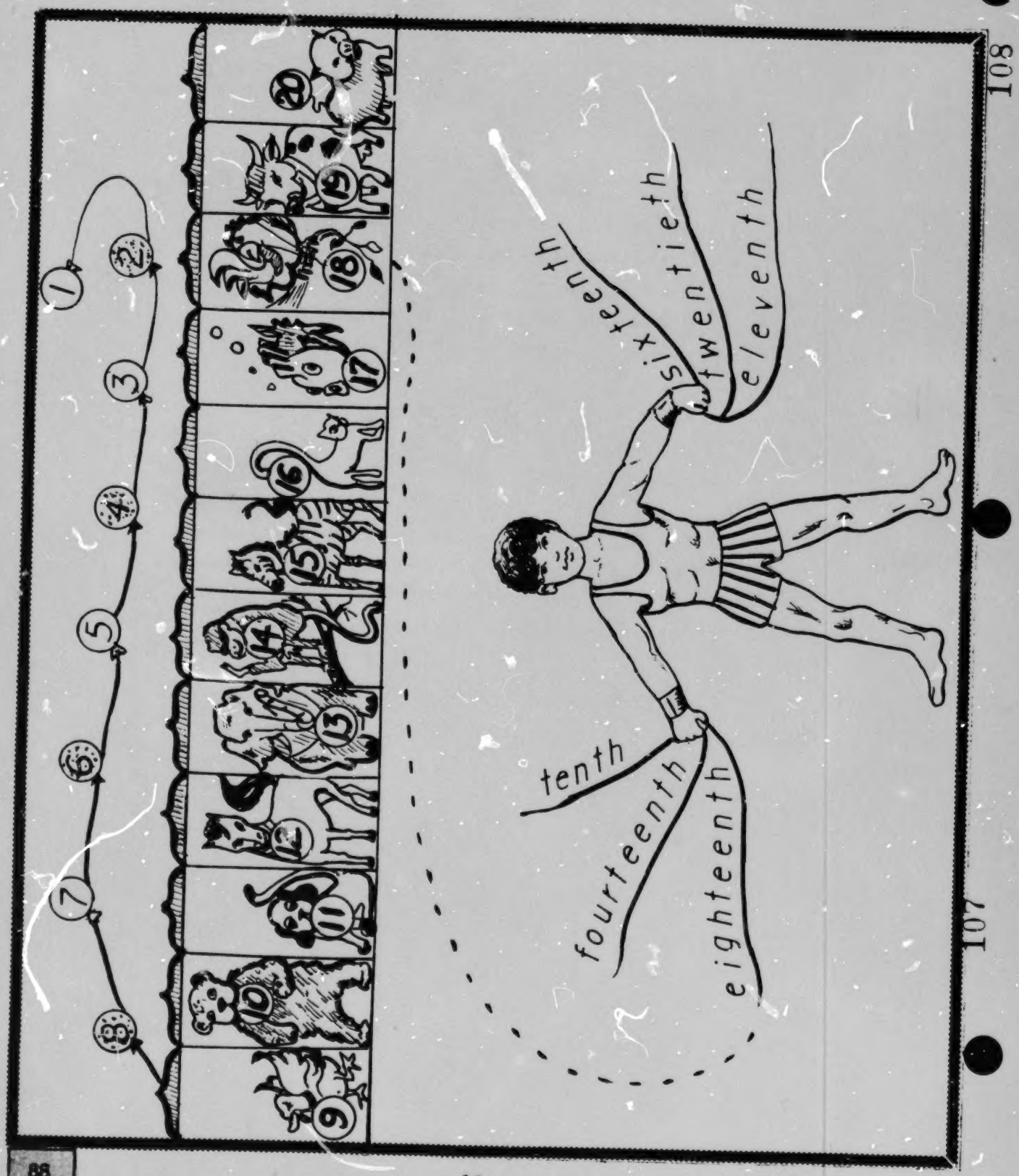
STRATEGY 2:

Place on the chalkboard a blank calendar for a month that has 31 days. Have individual students come to the chalkboard and fill in the numbers for each day, first through thirty-first. As they fill in the number, have each student repeat the ordinal number. After the calendar has been completed, ask, "Which day is the third Tuesday? The first Friday? The last Monday? ..."

P.O. 2.01.06.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Connect each leash to the correct number.



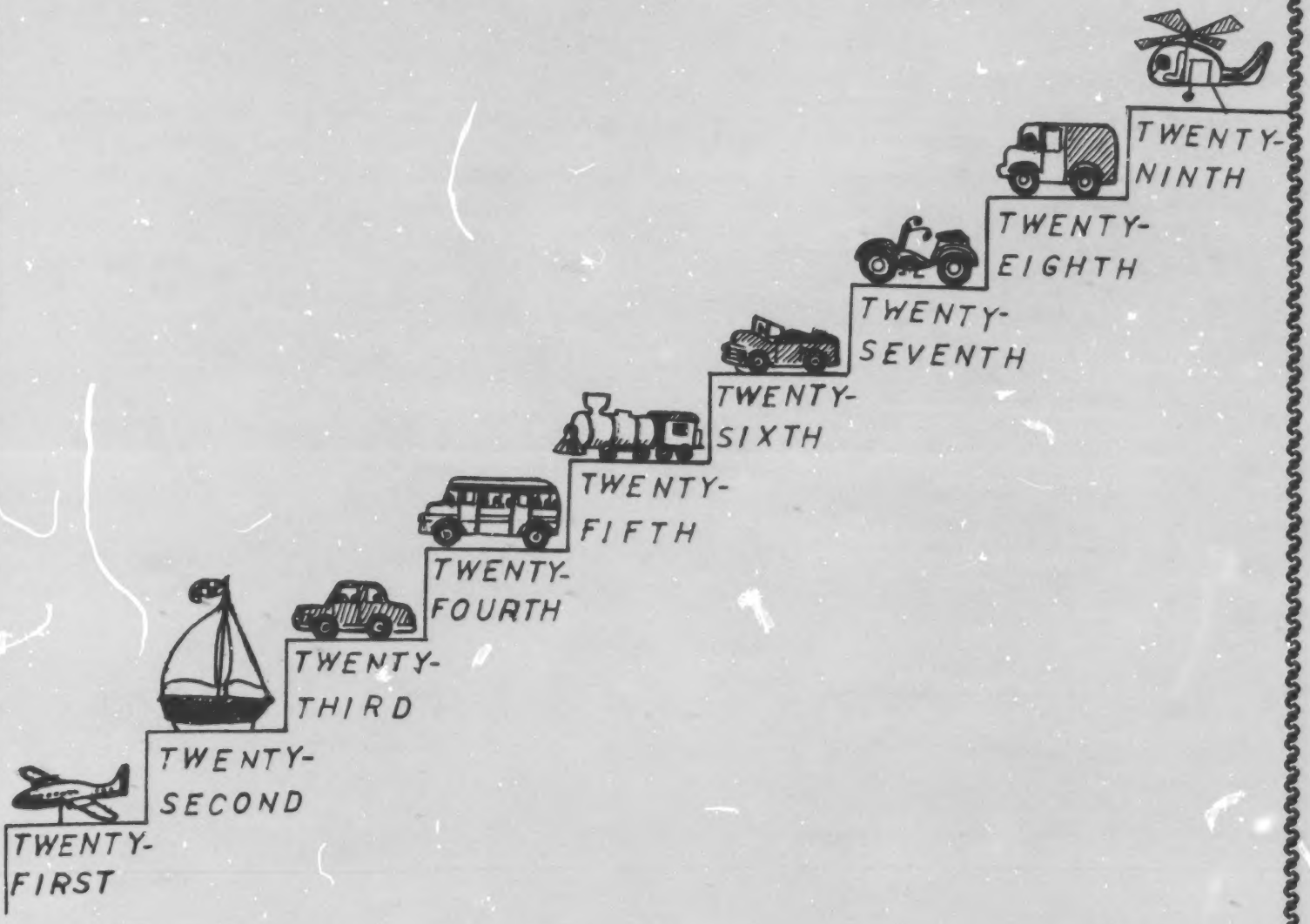
108

107

P.O. 2.01.06.02

NAME: _____ CLASS: _____ DATE: _____

Can you read these words?



-10b -

P.O. 2.01.06.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill-in the ordinal number words under the vehicles with missing numbers.

The jeep is on the twenty-sixth step.

The boat is on the _____ step.

The motorcycle is on the _____ step.

The airplane is on the _____ step.

The train is on the _____ step.

The car is on the _____ step.

2.10.01 TIME - MONTHS AND YEARS

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*2.10.01.01A recite the months of the year in sequential order;
e.g,
January, February, March,...December

2.10.01.02A state what last month was, and what next month will be;
e.g.,

Last month was March.
Next month will be May.

2.10.01.03B identify the number of days in a month and a year;
e.g.,

This month has 30 days.

SUN.	MON.	TUES.	WED.	THURS.	FRI.	SAT.
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

365 days = 1 year
366 days = 1 leap year

2.10.01.04B identify the dates that are before and after a given date;
e.g.,

Today's date is March 17, 1983.
Yesterday's date was March 16, 1983.
Tomorrow's date will be March 18, 1983.

A week from Tuesday will be March 9, 1983.

2.10.01.05A read the month, day, and year from a calendar.
e.g.,

Today is Monday, April 11, 1983.

APRIL

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

2.10.01

VOCABULARY

TERMS

January
February
March
April
May
June
July
August
September
October
November
December
month

GETTING STARTED

Prepare a blank calendar for the current month. Say, "Who can tell us what month we are in?" Write the name of the month on the calendar. Say, "Who can tell us the name of the first day of the week?" Ask a student to write, "Sunday" on the calendar. Continue through Saturday. Ask the students to repeat the names of each day of the week. Ask several students to fill in each day in the month. Say, "How many days are in this month? What is the name of the month? How many days are there in one week? What are the names of the days of the week?"

Prepare 12 oaktag cards with the name of each month in the year. Place the 12 cards on the ledge of the chalkboard. Say, "Who can come up and find the name of this month?" Ask the student to hold up the card and read the name of the month. Say, "Who can come up and find the name of the month when Christmas comes?" Repeat the procedure through the twelve months. Ask the students to say the names of all the months. (Note: Do not elicit the names of the months in sequential order.)

2.10.01

2.10.01.01 recite the months of the year in sequential order

STRATEGY 1: Prepare 12 cards (backed with tape) with the name of each month and 12 cards with the ordinal numbers first through twelfth. Hold up the cards (in random order) and ask the students to read the name of each month and each ordinal number. As they name them, place the ordinal cards in sequential order on the ledge of the chalkboard. Say, "Who can tell us the name of the month when the new year begins? Yes, January is the first month in the year." Ask a student to place the card for January on the chalkboard above the ordinal number "first." Say, "Who remembers what month Valentines Day is in? Yes, February is the second month in the year." Ask a student to place the card for February on the chalkboard above the ordinal number "second." Repeat the procedure through December. Ask the students to read the name of each month as follows: January, first.... For further reinforcement say, "Which is the sixth month? What month is September?"

STRATEGY 2: Prepare 12 cards (backed with tape) with the name of each month. Place them on the ledge of the chalkboard. Write the ordinal numbers first through twelfth on the chalkboard. Say, "We know the names of the months and today we are going to learn the order in which they come. Who can tell us how many months there are?" (12) Say, "What are the names of the months?" Elicit from the students the names of the months. Say, "Who

STRATEGY 2: cont'd

has a birthday in January?" Ask a student to come up and place the card for January under the ordinal number "first." Repeat this activity through December. If no student's birthday falls in a given month, ask the students other questions to elicit the name of the month. To further reinforce the name of each month in sequential order, sing the following to the tune of "Mary Had A Little Lamb":

January is the first, is the first, is the first
January is the first
The first month of the year.
(Proceed through December.)

2.10.01.02 state what last month was, and what next month will be

STRATEGY 1: Display a calendar for the current month. Prepare 12 oaktag cards with the names of each month. Place the cards in sequential order on the ledge of the chalkboard. Say, "Who can tell us the name of the month we are in?" Ask a student to come up and point out the card with the name of that month. Say, "Who can tell us the name of the month that comes just before February?" After the correct response has been elicited, point to the month before and have the students repeat, "Last month was January." Now say, "Let's go back to February. Who can tell us the name of the month that comes right after February?" Point to the month after and have the students repeat, "Next month will be March." Repeat this activity using other months until sufficient reinforcement is given.

2.10.01

STRATEGY 2: Prepare 20 cards with questions such as, "I am the month that comes before December." or "I am the month that comes after July." Place the cards in a secret box. Have available flashcards with the names of each month. Place the cards in sequential order on the ledge of the chalkboard. Ask five students to stand in a row in the front of the classroom. Say, "Who is standing just before Maria? Who is standing right after Maria?" Repeat this activity to reinforce the concepts of before and after. Say, "Now we are going to play another game. First, let's say the name of each month in the year." After the names of the months have been repeated, say, "Who can tell us the name of the month that comes before June?" Ask the students to repeat, "The month before June was May." Say, "Who can tell us the name of the month that comes after June?" Have the students repeat, "The month after June is July." Show the students the secret box. Say, "This is a secret box. Inside there are clues to special answers." Ask a student to come up and choose a clue. If the student gives the correct answer, (e.g., correct month) he/she should be given a reward. Repeat this activity until sufficient reinforcement is given.

2.10.01.03 identify the number of days in a month and a year

STRATEGY 1: On the chalkboard display one calendar for the current month and one for the month before or after. Prepare a copy of the calendar for the entire year for each student. Point to the

STRATEGY 1: cont'd

current month and say, "What is the name of this month? What are the days of the week? Why are there numbers written on the calendar? How many numbers are there?" Reinforce the understanding that the numbers represent the number of days. Point to the second month and say, "How many numbers are there in this month?" Elicit from students the correct number. Say, "Months have 30 days while other months have 31 days, and one month has only 28 days." Ask the students to look at their copy of the calendar. Discuss the number of days in each month. Point out that February has only 28 days and that every four years it has 29 days. Conclude by giving the students this rhyme to remember the number of days in each month: Thirty days hath September, April, June, and November. All the rest have 31, except for February, which has 28 and leap year makes it 29.

STRATEGY 2: Prepare 12 flashcards with the names of each month and interlocking cubes in two colors. Place the cards on the ledge of the chalkboard. Prepare a copy of a yearly calendar for each student . Say, "Today we are going to find out how many days there are in each month." Display the rhyme "Thirty days hath September ..." on a chart. Say, "This rhyme will help you learn the number of days in each month." Ask the students to repeat the rhyme several times. Say, "Look at your copy of the calendar. How many days are there in January, April...? Which months have 30 days?" Develop the understanding that some months have 30 days while other months have 31 days. Point out that February has only 28 days, and 29 days every leap year.

STRATEGY 2: cont'd

Say, "Now let's read the name of each month on the flashcards." Draw three large circles on the chalkboard.
e.g.,

Ask a student to come up, choose a card, say the name of the month, and place it inside the correct circle. Continue this activity for all the months.

Say, "Who can tell us the number of days in one week? How many months are there in one year?" If you look at your calendar you will see all the months in the year. We are going to find out how many days there are in one year. Let's look at this month. How many days are in this month?" Display the cubes. Assign one color the value of 10, e.g., yellow, and the other color the value of 1, e.g., red. (It may be necessary to review counting by tens.) Say, "If the month that we are in has 31 days, then we will use Y Y Y R to show 31." Continue this activity until there are 12 groups of cubes. Ask students to come up and make the groups. After all of the groups are completed, count all of the yellow cubes by tens and count all of the red cubes by ones. Find the sum of the yellow and red cubes. Develop the understanding that there are 365 days in one year (366 days when leap year comes).

2.10.01

2.10.01.04 **identify the dates that are before and after a given date**

STRATEGY 1: On the chalkboard, place a calendar for the current month. Point to it and say, "What is the name of the month? What is the year?" Then ask the students to repeat the name of the month and each day, e.g., September 1st, September 2nd, ... Point to today's date and say, e.g., "Today is September 14, 1983." Ask a student to come up and find the day that is one before today. Say, "Yesterday was September 13, 1983." Now ask a student to come up and find the day that is one after today. Say, "Tomorrow will be September 16, 1983." Point to September 14 and say, "What will the date be a week from today?" Continue this procedure to find the dates a week from today, a week from tomorrow ...

STRATEGY 2: Draw a number line numbered 0 through 31 on the chalkboard. Prepare a calendar for the current month. Point to any number on the number line and say, "What number is this?" Then point to the number that is one before and the number that is one after and ask, "What number is this?" Continue this activity to reinforce the concepts of before and after. Point to the calendar and say, "What is the name of the month? How many days are there in this month? What is today's date?" Elicit the correct date and ask all the students to repeat it. Say, "Who can tell us what tomorrow's date will be?" Again, ask all the students to repeat the date. Develop the understanding that one number before a given date is yesterday and one number after a given date is tomorrow. Repeat this

STRATEGY 2: cont'd activity, randomly selecting dates, and asking the students to find the date that is one before and one after a given date.

Ask the students to look at their calendars and find the date that is one week from today. Say, "What will the date be a week from Wednesday? What was the date a week ago Tuesday?" Continue this procedure.

2.10.01.05 read the month, day, and year from a calendar

STRATEGY 1: Prepare a blank calendar for the current month and paste it on the chalkboard. Say, "Who can tell us the name of this month?" Ask a student to come up and write the name of the month on the calendar. Say, "Who would like to come up and write in the days of the week?" After the days of the week have been written, say, "Who remembers the number of days in this month?" (If students have difficulty review the rhyme, "Thirty days hath September, ...") After the days and dates have been written, circle today's date and say, "Today is Monday, September 23, 1983." Circle several other dates and call on individual students to read them, being sure to include the month, day and year. Vary the format by asking, e.g., "What is the date of the last Wednesday, second Friday, ...?" Continue this procedure, using other dates.

STRATEGY 2: Prepare a copy of the calendar for the entire year for each student. Display a calendar for the current month. Say, "What is the name of the month? What is the year? How many days are in

STRATEGY 2: cont'd

this month?" Circle today's date and say, "Who can name the month, day and year of the date that I have circled?" Continue this activity by asking, e.g., "What is the date of the first Monday, third Friday, ...?" Ask the students to look at their calendar. Say, "Let's name the months of the year. Now, everyone is going to find his/her birthday on the calendar and circle it." Ask individual students to read the day and date of their birthday for the current year. Be sure they read the month, day, and year.

P.O. 2.10.01.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Fill-in the missing ordinal numbers under each month.
A. Circle the correct answer.

fifth second twelvth seventh tenth ninth	There are 12 months in 1 year.

January	February	March	April
first	second	third	fourth
May	June	July	August
	sixth		eighth
September	October	November	December
		eleventh	

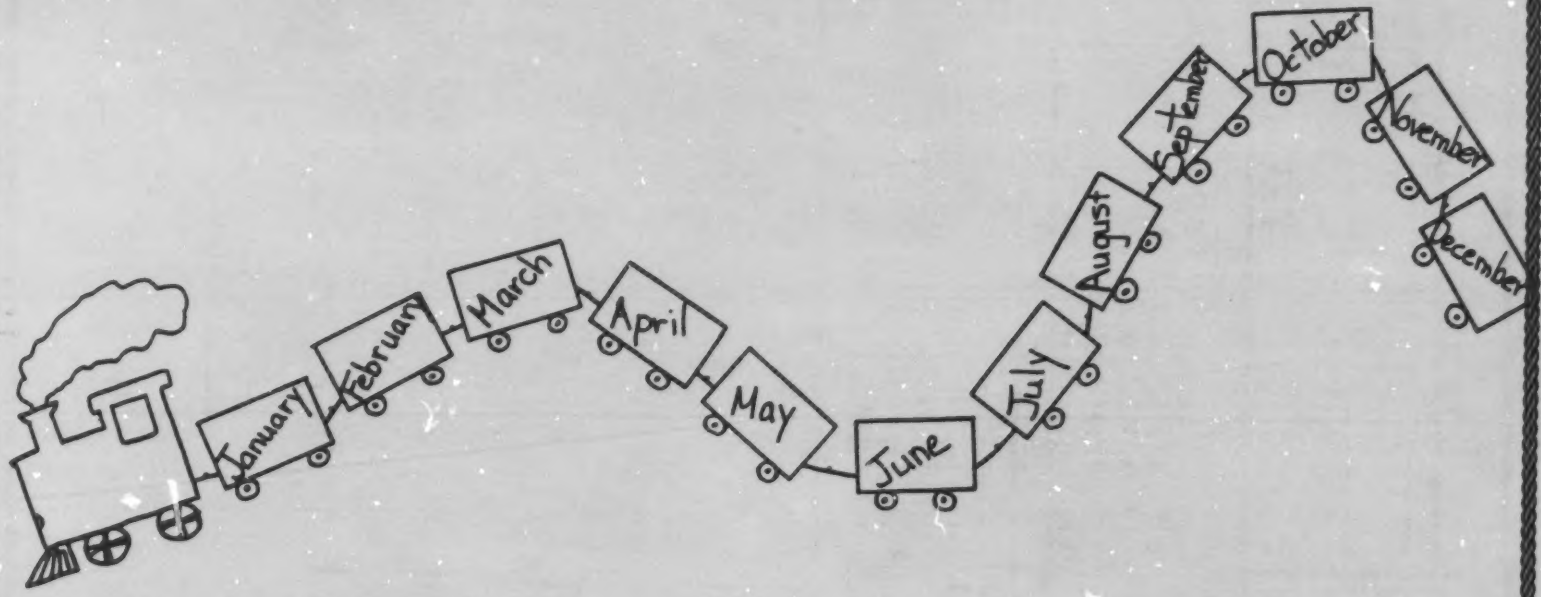
A Circle the answer.

1. Which month of the year is June?
seventh (sixth) eighth
2. Which month of the year is September?
tenth eleventh ninth
3. Which month of the year is March?
third fifth second
4. Which is the seventh month of the year?
April July June

P.O. 2.10.01.02

NAME: _____ CLASS: _____ DATE: _____

Directions: A. Write the month after.
B. Write the month before.



A

		B	
April	May	July	August
October	_____	_____	March
January	_____	_____	November
February	_____	_____	June

P.O. 2.10.01.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Write the correct answer in the blank space.

1983

JANUARY

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29

FEBRUARY

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

MARCH

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

APRIL

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

MAY

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JUNE

S	M	T	W	Th	F	S
				1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

JULY

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24/31	25	26	27	28	29	30

AUGUST

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

SEPTEMBER

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29

NOVEMBER

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER

S	M	T	W	Th	F	S
					1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

May has _____ days.

September has _____ days.

The month after June has _____ days.

The month after January has _____ days.

The month before December has _____ days.

The fourth month has _____ days.

How many months have 31 days? _____

P.O. 2.10.01.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Follow the directions as given below.

October 1983

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

October is the (eleventh ninth tenth) month.

There are _____ days in October.

What is the date a day before?	What is the date a day after?
October 23, 1983 _____	_____
October 11, 1983 _____	_____
October 2, 1983 _____	_____
October 30, 1983 _____	_____
October 19, 1983 _____	_____

105

P.O. 2.10.01.05

NAME: _____ CLASS: _____ DATE: _____

Directions: Follow the directions as given in each box.

1983

S.	M.	T.	W.	Th.	F.	S.
JANUARY						
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29
FEBRUARY						
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					
MARCH						
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
APRIL						
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
MAY						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				
JUNE						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	
JULY						
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/31	24	25	26	27	28	29
AUGUST						
30		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
SEPTEMBER						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	
OCTOBER						
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29
NOVEMBER						
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			
DECEMBER						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Name the months that have 30 days.

_____ _____ _____ _____

Name the months that have 31 days. _____

_____ _____ _____ _____

_____ _____

Give the day of the week for each:

September 2 _____ February 29 _____

June 15 _____ December 25 _____

Give the date for each:

The first Saturday in January _____

The last Friday in November _____

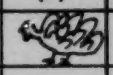
108

P.O. 2.10.01.05

NAME: _____ CLASS: _____ DATE: _____

Directions: Follow the directions as given in each box.

November 1983

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Election Day	2	3	4	5
6	7	8	9	10	Veteran's Day	12
13	14	15	16	17	18	19
20	21	22	23		25	26
27	28	29	30			

The name of the month is _____.

There are _____ days in this month.

Give the date of each:

the first Monday _____

the third Friday _____

the fourth Saturday _____

Give the month, day and year for each:

Thanksgiving _____

Veteran's Day _____

Election Day _____

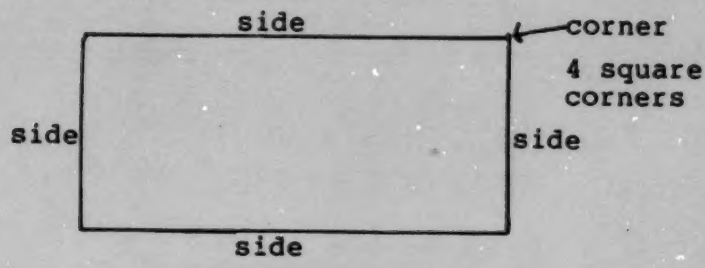
2.09.02 EXPLORE PROPERTIES OF A RECTANGLE, SQUARE, TRIANGLE, AND CIRCLE

(1 lesson)

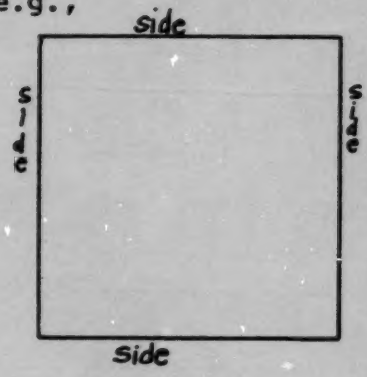
PERFORMANCE OBJECTIVES

The student will be able to...

2.09.02.01B list some properties of a rectangle (four sides, four square corners); e.g.,



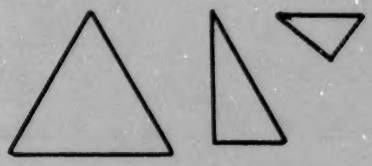
2.09.02.02B list some properties of a square (four equal sides, four square corners); e.g.,



All 4 sides are equal in length.
All corners are square corners.

2.09.02.03B recognize a triangle and list some properties of a triangle (three sides, three corners);

e.g.,



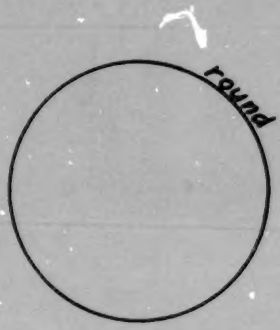
are triangles.

A has 3 sides.

A has 3 corners.

2.09.02.04B recognize a circle and list some properties of a circle (round, continuous side, no corners, a center).

e.g.,



2.09.02

VOCABULARY

TERMS

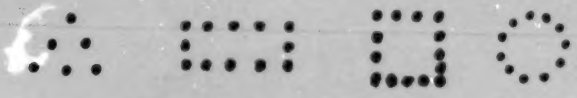
rectangle
square
triangle
circle
equal

GETTING STARTED

Prepare four oaktag cards, each having the shape of a square, circle, triangle and rectangle. Prepare a rexographed sheet, e.g.,

Hold up each oaktag card and ask the students to identify each shape. After the shapes have been identified, distribute the rexographed sheet to each student. Assign each shape a color, e.g., red - square, yellow - triangle, blue - rectangle, green - circle. Ask the students to complete the figure by coloring each shape with the assigned color.

On the chalkboard draw dot pictures.
e.g.,



Select students to connect the dots. After the dots have been connected ask the students to identify each shape. Say, "Name real objects (or locate objects in a magazine) that have the same shapes as the pictures we just drew."

2.09.02

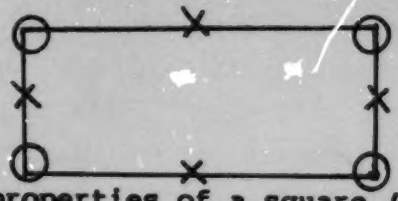
2.09.02.01 list some properties of a rectangle (four sides, four square corners)

STRATEGY 1: Prepare four pieces of string (two pieces six inches long and two pieces three inches long), tape and toothpicks. Draw a rectangle six inches wide and three inches long on the chalkboard. Ask the students to identify the shape. Hold up the four pieces of string and say, "How many pieces of string do I have?" (4) "What can you tell us about the lengths of these pieces of string?" Elicit that two pieces are long and two are short. Select students to tape the string over the rectangle that is drawn on the chalkboard. Say, "Why did we use four pieces of string?" Elicit that there are four sides. Ask a student to trace over the four sides. Point out the four corners of the rectangle. Say, "Are all of the sides the same size?" Elicit that the rectangle has two long sides and two short sides. Draw several rectangles of various sizes on the chalkboard. Ask the students to point out the sides and corners. Distribute several toothpicks to each student and ask them to construct rectangles with them.

STRATEGY 2: Prepare pictures of rectangular objects. Display the pictures and say, "What can you tell us about the shape of these pictures?" (they are rectangles) Then ask a student to draw a rectangle on the chalkboard (adjust sides if necessary). Say, "How many lines were drawn to form the rectangle? How many sides are there?" (4) "Are all of the sides the same size?" Elicit that

STRATEGY 2: cont'd

two sides are long and two are short. (Use the string to reinforce the length of the sides if necessary.) Point out one corner of the rectangle and ask a student to point out the other corners. Say, "How many corners does a rectangle have?" (4) Ask the students to draw a rectangle. Have them mark each side of the rectangle with an "X" and draw a circle around each of the four corners. e.g.,



2.09.02.02 **list some properties of a square (four equal sides, four square corners)**

STRATEGY 1: Draw the following on the chalkboard: Ask a student to connect the dots and identify the shape. Trace over the sides of the square, using different colored chalk. Say, "How many lines did I trace over?" (4) "Each line is a side of the square. How many sides are there?" (4) Point out the four corners of the square. Then direct the students' attention to the dots on the square. Elicit from the students the number of dots used to form each side. (4) Reinforce the understanding that all four sides are equal because they are of equal length. Ask the students to repeat this activity (on the chalkboard and at their desks), using two dots and then three dots to form each side. Reinforce the understanding that all four sides of a square are equal.

2.09.02

STRATEGY 2: Have available a supply of straws (four for each student). Point to a square-shaped object in the classroom and ask the students to identify the shape. Then ask a student to draw the shape on the chalkboard (adjust the sides if necessary).

Distribute four straws to each student and direct the students to construct a square using the four straws. Say, "How many straws did you use to make the square?" (4) "How many sides are there?" (4) "How many straws were used for each side?" (1) Reinforce the understanding that all of the sides are equal because the same number of straws is on each side. Point out the four corners of the square on the chalkboard. Ask the students to find the four corners on their square. Ask the students to identify square-shaped objects in the classroom. The sides of the objects can be measured to assure that the object is a square. Have the students point out the four corners of each object.

2.09.02.03 recognize a triangle and list some properties of a triangle (three sides, three corners

STRATEGY 1: Have available a coat hanger and masking tape. Display the coat hanger and ask the students to identify the shape. Say, "How many sides does a triangle have?" Elicit three sides and ask a student to trace over each side with his/her finger. Point out the three corners on the triangle. Reverse the position of the hanger (turn it upside down) and elicit the shape of the hanger.

STRATEGY 1: cont'd

Reinforce the understanding that a triangle can go in any direction (draw several on the chalkboard, e.g.,) but that it must have three sides and three corners. Ask several students to construct triangles on the chalkboard with the masking tape. Have them mark the sides and corners of each triangle.

STRATEGY 2:

Draw a large picture of a house on the chalkboard.
e.g.,

Ask a student to find the triangle shape in the picture and put a circle around it. Say, "How many sides does a triangle have?" Trace over the three sides with your finger. Point out the three corners of the triangle. Now draw a yield sign on the chalkboard.
e.g.,

Ask the students to identify the shape of the traffic sign. Select a student to find the sides and corners of the triangle. Compare the shape of the two triangles on the chalkboard. Reinforce the understanding that both are triangles because they have three sides and three corners. Ask the students to cut out from magazines pictures that have the shape of a triangle, to make a collage out of them as a class project.

2.09.02

2.09.02.04 **recognize a circle and list some properties of a circle (round, continuous side, no corners, a center)**

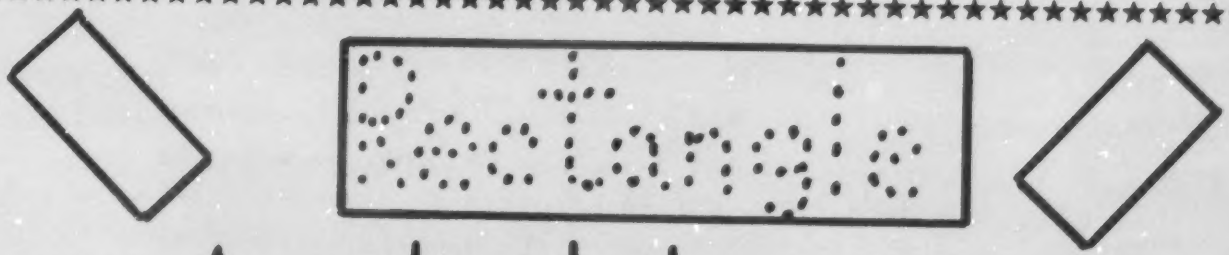
STRATEGY 1: Have available a toy car with movable wheels. Hold up the car and say, "Who can tell us what the car rides on?" Elicit wheels and ask the students to identify the shape of the wheels. Rotate the wheels to develop the understanding that a circle is round and has a continuous side. Point out that there are no corners but that it does have a center. Demonstrate the center of a circle on the chalkboard. ⊙ (It may be helpful to explain how the spokes on a bicycle all come from the center.) Ask the class to sit on the floor and form a circle. Say, "We are going to play a game. We are going to go around the circle. Each one will have five seconds to name an object that has the shape of a circle."

STRATEGY 2: Have available construction paper, glue, and scissors. Display pictures of the following on the chalkboard: eyeglasses, doughnut, bicycle, snowman, clock... Say, "How are these shapes alike?" (circles) "What can you tell us about a circle?" Select students to identify the circle in each object and elicit from the students that a circle is round, it has a continuous side, no corners, and a center. Ask the students to trace large and small circles in the air with their fingers. Distribute the construction paper and scissors. Ask the students to make three circles of three different sizes. They will cut out the circles and glue one inside the other, as follows:

P.O. 2.09.02.01

NAME: _____ CLASS: _____ DATE: _____

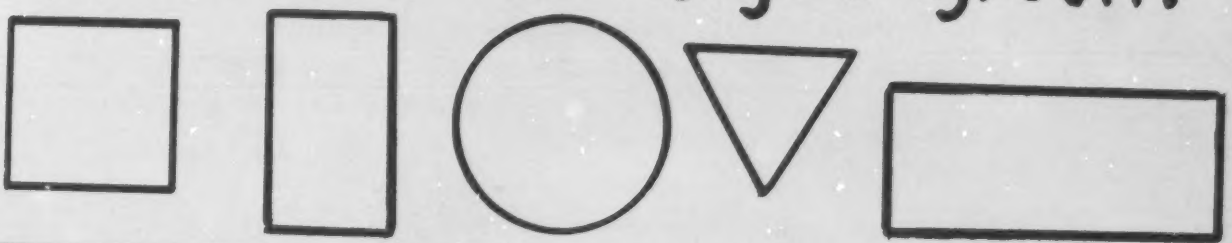
Directions: Follow the directions as given in each part.



A rectangle has ____ sides.

___ sides are long and ___ sides are short.

A. Color the rectangles green.

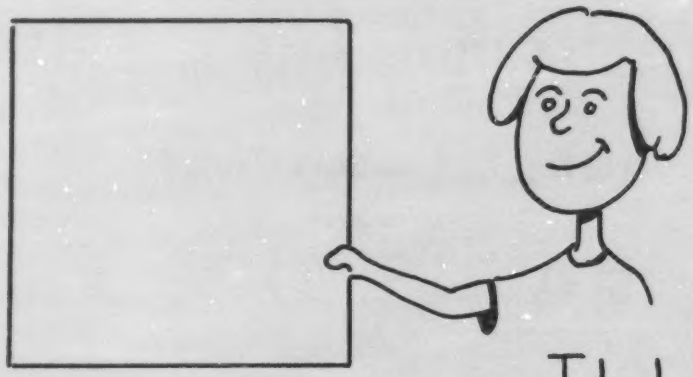


B. Connect the dots to make 2 other rectangles each of a different size.

P.O. 2.09.02.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Follow the directions as given in each part.

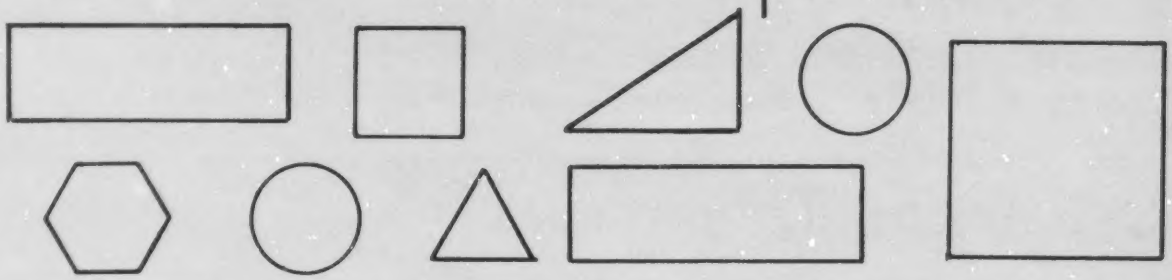


This is a square.

It has _____ sides.

All of the sides are _____.

A. Put an X on all of the squares.



B. Draw a square.

Draw another square inside of it.

P.O. 2.09.02.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Follow the directions as given in each part.

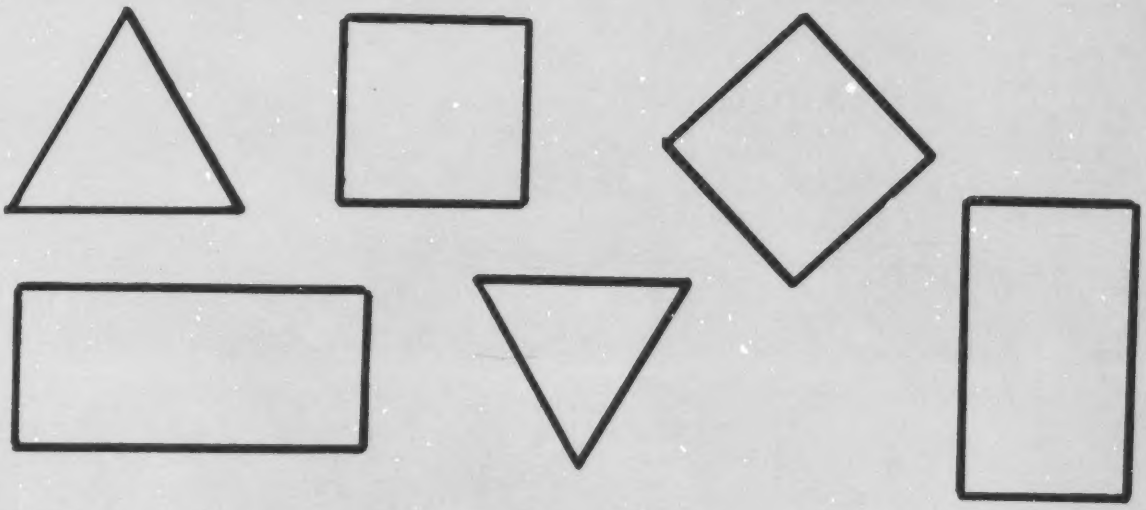
The witch's hat has___sides.

It has___corners

It is a triangle.

A. Connect the lines to make a triangle.

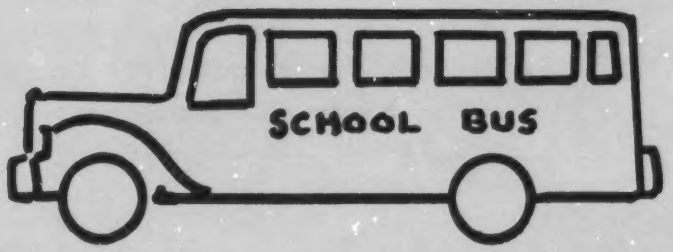
B. Color the triangles.



P.O. 2.09.02.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Follow the directions as given in each part.



The wheels on the bus are (square, round).

A.

Trace the shape and its name.

circle

B.

Put an X on each object that has the shape of a circle.

2.13.01 GUESS AND CHECK

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.13.01.01A check guesses against problem conditions in non-numerical problems;
e.g.,

David Joyce Joe

"I'm thinking of a child? Who is it?
The child is wearing a hat. Who is it?
The child is holding a balloon. Who is it?

2.13.01.02A check guesses against problem conditions in numerical problems.
e.g.,

Guess my number.
It is a number between 1 and 10.
It is an odd number.
It is greater than seven.

2.13.01

VOCABULARY

TERMS

guess

GETTING STARTED

Elicit from students what a "guess" is. Ask the student to guess the number you are thinking of. Say, "No, that is not my number," regardless of the number named. Elicit from the students that in order to make a good guess you must have clues.

Have available a bag of chips. Reach in and grab a handful. Say, "Guess how many chips I have? Do you think I could have 500? 20? 4? What do you think a reasonable guess would be?" Count the chips and ask the students if their guess was reasonable.

2.13.01

2.13.01.01 check guesses against problem conditions in non-numerical problems

STRATEGY 1: Tell the students that they are going to play a guessing game. Say, "I am going to call groups of students to the front of the room. Then I will write one of your students names on a piece of paper. The rest of you will have to guess the name I wrote." Give clues one at a time, so students can deduce the correct answer. Repeat this procedure several times. Then select students to give the clues.

STRATEGY 2: Tell the students that they are going to play a guessing game. Arrange the class in a circle. Tell the students to call their names out one at a time. Say, "I'm going to write a student's name on a piece of paper. You have to guess the person's name. Each of you may ask one clue question that I will answer. Each of you can raise your hand at any time and guess the answer. If you guess incorrectly you are out and must leave the circle. But if you guess correctly, you win." Begin with a question from one student. Answer the question and proceed clockwise around the circle.

2.13.01

2.13.01.02 **check guesses against problem conditions in numerical problems**

STRATEGY 1: Tell the students that they are going to play a number guesing game. Display a jar of marbles, chips, jellybeans or other small objects. Say, "Guess the number of marbles in the jar. I will give you one clue at a time. You may raise your hand at anytime, but you have only one guess. The first one to guess the correct number wins." Select a student to check the correct guess by counting the objects in the jar. Repeat the procedure several times.

STRATEGY 2: Select a student to write a number between two given numbers on a slip of paper. Tell the student you will guess that number by asking him/her questions about that number. Do so. Then pair students and have them repeat the activity together.

P.O. 2.13.01.01

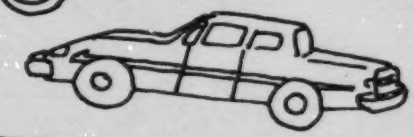
NAME: _____ CLASS; _____ DATE: _____

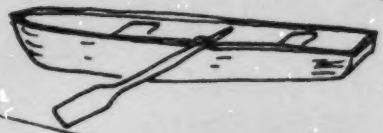
Directions: Circle the correct answer.

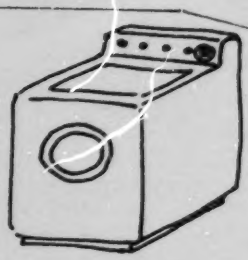
1. Choose the child.
   Clues: The child is wearing a hat.
   The child is holding something.
   The child is holding a flag.

2. Which animal is it?
   Clues: The animal is soft.
   The animal has 4 legs.
   The animal barks.

3. What am I?
   Clues: I have wheels.
   I have a seat.
   I have an engine.







4. Choose the machine.
   Clues: The machine works by electricity.
   The machine has a door.
   The machine keeps things cold.

P.O. 2.13.01.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Circle the correct number.

A. Guess My Number.

[3 , 9 , (4), 12]

It is an even number.
It is a number between 1 and 10.

B Guess My Number.

[13 , 64 , 87 , 61 , 7]

It is between 50 and 100.
It is an odd number.
It is less than 75.

C. Guess My Number.

[10 , 20 , 30 , 40]

It is > 10.
It is < 40.
It is not 20.

D. Guess My Number.

[15 , 36 , 57 , 18 , 3]

It is < 50.
It is > 10.
It is an odd number.

E. Guess My Number.

[26 , 9 , 91 , 16]

It is a two-digit number
It is > 20.
It is not even.

2.02.01 ADDITION OF 2- AND 3-DIGIT NUMBERS WITHOUT REGROUPING

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.02.01.01B add three or more 2-digit numbers without regrouping (exchange) and check;
e.g.,

	check
13	52
21	13
+52	+21
86	86

2.02.01.02B add a 3-digit number and a 2-digit number without regrouping (exchange) and check;
e.g.,

	check
124	31
+ 31	+124
155	155

2.02.01.03B compute addition examples using numbers through $9.99 and check;
e.g.,

	check
$1.24	$ .31
+ .31	1.24
$1.55	$1.55

2.02.01.04A solve story problems related to skills learned in this module.

e.g.,

Mr. Smith drove 262 miles one day and 17 miles another day. How many miles did he drive all together?

	check
262	17
+ 17	262
279 miles	279 miles

GETTING STARTED

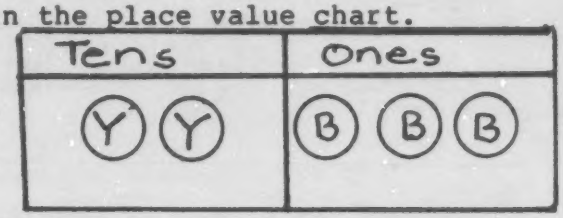
Prepare eighteen tens strips and eighteen unit squares, using squared material. Place the number 23 on the chalkboard, taping 2 tens strips and three unit squares on the chalkboard. Write the plus sign under and to the left of the tens strips and unit squares. Then put the number 41 on the chalkboard, taping 4 tens strips and one unit square next to the plus sign. Draw the bar _____ indicating equal under the 4 tens strips and one unit square. Ask one student to come to the chalkboard and add the ones strips and place four units squares in the ones column. Then have the student add the tens strips and place 6 tens strips in the tens column. Say, "How would we write 2 tens and 3 ones?" Write the number 23 on the chalkboard. Say, "How much is 4 tens and 1 one?" Write the number 41 on the chalkboard. Say, "How would we write "6 tens and 4 ones?" Write the number 64 on the chalkboard. Ask a student to read the problem. Repeat with other examples.

Put the number 16 on the chalkboard. Write the plus sign under and to the left of the number 16. Write the number 52 next to the plus sign. Ask a student to come to the chalkboard and write the bar under the 52 and solve the equation. Ask another student to read the example making sure it is read as, "16 plus 52 equals 68." Repeat this procedure with several other examples.

2.02.01

2.02.01.01 **add three or more 2-digit numbers without regrouping (exchanging) and check**

STRATEGY 1: Prepare counters in two colors and individual place value charts for students. Draw a place value chart on the chalkboard. Prepare 18 yellow and 18 blue circles for demonstration. Show the yellow circles and say, "These circles represent tens." Show the blue circles and say, "These circles represent ones." Tape two yellow and three blue circles in the place value chart.



Ask the students to show this arrangement with their counters. Tape one yellow and two blue circles under the two yellow and three blue circles. Ask the students to add this to their charts. Tape four yellow circles and one blue circle under the one yellow circle and two blue circles. Ask the students to add this to their charts in the ones column. Write a plus sign (+) to the left of the third set of circles. Say, "When we add, we are going to begin with the blue circles in the ones column." Draw the bar ____. Ask the students to add their chips at their seats. Call a student to come to the chalkboard and place the correct number of blue circles under the bar on the chalkboard. (6) Ask another student to come to the chalkboard and add the yellow circles and put the correct number of yellow circles under the bar on the chalkboard. (7) Say, "How would we write two yellow circles and three blue circles as a number?" Ask a student to come to the chalkboard and write 23.

STRATEGY 1: cont'd

Say, "How would we write one yellow circle and two blue circles as a number?" Ask a student to come to the chalkboard and write the number 12. Say, "How would we write four yellow circles and one blue circle as a number?" Ask a student to come to the chalkboard and write the number 41. Say, "How would we write seven yellow circles and six blue circles as a number?" Ask a student to come to the chalkboard and write the number 76. Ask a student to read the addition example with the numbers. Say, "When we check, we reverse the top and bottom numbers, and leave the number in the middle." Write the following example on the chalkboard.

```
 41
 12
+23
```

Ask a student to come to the chalkboard and add the ones. Ask another student to add the tens. Ask a student to read the check. Say, "Since the answers are the same, we say the answers check." Repeat this procedure with other examples.

e.g.,

```
 24
 43
+31
```

STRATEGY 2: Write the following example on the chalkboard.

```
 15
 21
+43
```

Say, "When we add we always begin with the ones column. What numbers are in the ones column?" (5, 1 and 3) "How much is 5 plus 1 plus 3?" Write the number 9 under the 3. Say, "Then we add the tens column." (1, 2, and 4) "How much is 1 plus 2 plus 4?" Write the number 7 in the tens column. Ask the student to read the example. Be certain the student says, "15 plus 21 plus 43 equals 79."

STRATEGY 2: cont'd

Say, "When we check we reverse the top and bottom numbers and leave the middle number in the middle."

Write the following example on the chalkboard.

```
 43
 21
+15
```

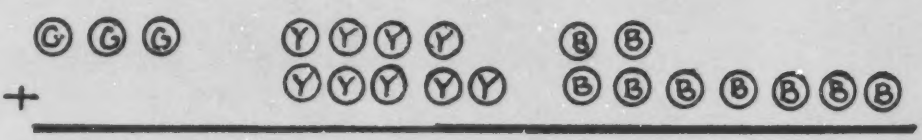
Ask a student to come to the chalkboard and add the ones. Ask another student to come to the chalkboard and add the tens. Ask a student to read the check. Say, "Since both answers are the same, we say the answers check." Repeat this procedure with other examples.

2.02.01.02 add a 3-digit number and a 2-digit number without regrouping (exchanging) and check

STRATEGY 1: Draw a place value chart on the chalkboard. Prepare 18 green, 18 yellow and 18 blue circles for demonstration. Prepare individual place value charts and counters in three different colors for students. Show the green circles and say, "These circles represent hundreds." Show the yellow circles and say, "These circles represent tens." Show the blue circles and say, "These circles represent ones." Tape three green circles, four yellow circles and two blue circles on the chalkboard. Ask the students to show this arrangement at their seats. Write the plus sign (+) under the green circle and tape five yellow circles under the four yellow circles, and seven blue circles under the two blue circles. Ask the students to add this arrangement to their charts. Say, "When we add, we are going to begin with the blue circles." Draw the bar under the seven blue

STRATEGY 1: cont'd

circles and five yellow circles.



Ask the students to do the addition using their counters at their seats. Ask a student to come to the chalkboard and put the correct number of blue circles under the bar on the chalkboard. Ask another student to come to the chalkboard and add the yellow circles and put the correct number of yellow circles under the bar on the chalkboard. Ask another student to come to the chalkboard and add the green circles and put the correct number of circles under the bar on the chalkboard. Say, "How would we write three green circles, four yellow circles and two blue circles as a number?" Ask a student to come to the chalkboard and write 342. Say, "How would we write five yellow circles and seven blue circles as a number?" Ask a student to come to the chalkboard and write the number 57. Say, "How would we write three green circles, nine yellow circles, and nine blue circles as a number?" Ask a student to come to the chalkboard and write the number 399. Ask a student to read the addition example with the numbers. Say, "We can check our work by rearranging the numbers we added." Point to the 57. Say, "We are going to write this number first." Write 57 on the chalkboard. Point to 342 and say, "We will write this number under the 57. Now let's add."

e.g.,

$$\begin{array}{r} 57 \\ +342 \\ \hline \end{array}$$

Say, "Our answers are the same. We call this the check."

2.02.01

STRATEGY 2: Write the following example on the chalkboard.

```
  623
+ 46
```

Say, "When we add we always begin with the ones column. What numbers are in the ones column?" (3 and 6) "How much is 3 plus 6?" Write the number 9 under the 6. Say, "Then we add the tens column." (2 and 4) "How much is 2 plus 4?" Write the number 6 under the 4 in the tens column. Say, "Last, we add the numbers in the hundreds column. What numbers are in the hundreds column? How much is 6 plus 0?" Write the number 6 under the space in the hundreds column. Ask a student to read the example. Be certain the student says "623 plus 46 equals 669."

Say, "To check this example we change the order in which we write the numbers."

e.g.,

```
  46
+623
```

Ask a student to perform the computation.
Say, "Let us compare our answers. Are they the same? Then we know our work is correct."

2.02.01.03 **compute addition examples using numbers through $9.99 and check**

STRATEGY 1: Get a ball, a jump rope, a doll, a balloon, an eraser, and a pencil. Make a price tag for each item and tape it to the individual items, e.g., ball $1.42, jump rope $2.51, doll $4.63, balloon $.14, eraser $.26, pencil $.35. Put two desks in front of the room. On one desk, put the ball, the jump rope, and the doll. On the second desk, put the balloon, the eraser, and the pencil. Say, "Today we are going shopping in our classroom store. You can buy two items but you must buy one

STRATEGY 1: from the table with the ball, jump rope, and the doll and one from the table with the balloon, eraser, and the pencil." Ask a student to come to the front of the room and choose two items. Ask the student to read the price tags. Write the prices on the chalkboard. Say, "If we wanted to find out how much the two items cost, what would we do?" Elicit from the students that we would add the two prices together. Say, "Let's write the addition example on the chalkboard." Write the example on the chalkboard.

e.g.
$$\begin{array}{r} \$1.42 \\ +\ .26 \\ \hline \end{array}$$

Say, "When we add, we begin with the numbers in the ones column. What numbers are in the ones column?" (2 and 6) "How much is 2 plus 6?" Write 8 under the 6 in the ones column. Say, "Next, we add in the tens column. "How much is 4 plus 2?" Write 6 under the 2 in the tens column. Say, "Last we add the dollars. How much is 1 plus 0?" Write 1 under the bar in the dollars column. Write the decimal point in the answer. Ask a student to read the example and the sum to the class.

Repeat this procedure, having other students make purchases from the class store. Reverse the algorithm. Write $ .26 on the chalkboard.

$$\begin{array}{r} +1.42 \\ \hline \end{array}$$

Say, "We changed the order of the way we wrote the prices. We are going to add again to see if we were right. This is called the check." Ask the students to add and check to see if both sums are the same.

STRATEGY 2: Write the following example on the chalkboard.

$$\begin{array}{r} \$3.51 \\ +\ .38 \\ \hline \end{array}$$

Say, "When we add dollars and cents, we begin in

STRATEGY 2: the ones column. What numbers are in the ones column?" (1 and 8) "How much is 1 plus 8?" Write 9 on the chalkboard under the 8 in the ones column. Say, "Next, we add the numbers in the tens column. What numbers are in the tens column?" (5 and 3) "How much is 5 plus 3?" Write the 8 under the 3 in the tens column. Say, "Last, we add the dollars. What number is in the dollars column?" (3) "How much is 3 and 0?" Write 3 in the dollars column. Place the decimal point in the answer. Say, "Finally, we place the decimal point." Ask a student to read the example and the sum to the class. Write $ .38 on the chalkboard.

+3.51

Say, "To check, we rewrite the example. Ask the students to add. Check the sum with the original sum. Say, "If our sums are the same we know we are correct."

2.02.01.04 solve story problems related to skills learned in this module

STRATEGY 1: Display pictures of farm animals. Tape the pictures to the chalkboard. Say, "Farmer Brown has 218 chickens and 31 cows on his farm. How could we find out how many animals he has all together?" Elicit from the students that we add 218 plus 31. Say, "Let's write the numbers on the chalkboard and add." Write 218 on the chalkboard.

+ 31

Ask a student to come to the chalkboard and add the two numbers. Say, "What do we call the cows and chickens on Farmer Brown's farm?" Elicit from the students that we call them animals. Say, "Let's label our answer." Write animals next to 249. Ask a student to read the problem to the class.

STRATEGY 1: cont'd

e.g.,

$$\begin{array}{r} 218 \\ +\ 31 \\ \hline 249 \end{array}$$ animals

Reverse addends to show the check.

e.g.,

$$\begin{array}{r} 31 \\ +218 \\ \hline 249 \end{array}$$

Repeat this procedure, using other examples.

STRATEGY 2: Write the following story problem on the chalkboard:

> Jane has 232 fish in one tank and 65 in another tank. How many fish are there in both tanks?

Say, "What numbers do we know from the problem on the chalkboard?" Elicit from the students 232 and 65. Say, "How could we find out how many fish are in both tanks?" Elicit from the students that we would add 232 plus 65. Say, "Let's write the example on the chalkboard." Write 232 on the challkboard.

$$+\ 65$$

Ask a student to come to the chalkboard and add the numbers. Say, "How would we label our answer?" Elicit from the students the word fish. Write fish next to the answer 297.

e.g.,

$$\begin{array}{r} 232 \\ +\ 65 \\ \hline 297 \end{array}$$ fish

Reverse the addends to show the check.

e.g.,

$$\begin{array}{r} 65 \\ +232 \end{array}$$

Repeat this procedure, using other examples.

P.O. 2.02.01.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Solve the examples, check and write the answers in the cars of the train. The first one has been done for you.

① CHECK

$$\begin{array}{r} 41 \\ 37 \\ +21 \\ \hline 99 \end{array} \qquad \begin{array}{r} 21 \\ 37 \\ +41 \\ \hline 99 \checkmark \end{array}$$

② CHECK

$$\begin{array}{r} 51 \\ 23 \\ +14 \\ \hline \end{array}$$

③ CHECK

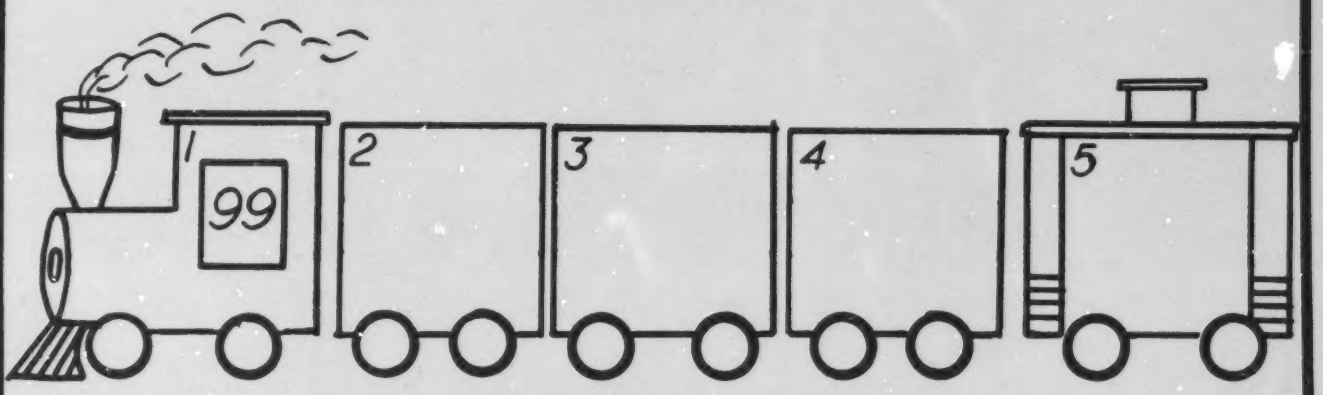
$$\begin{array}{r} 25 \\ 40 \\ +32 \\ \hline \end{array}$$

④ CHECK

$$\begin{array}{r} 27 \\ 60 \\ +11 \\ \hline \end{array}$$

⑤ CHECK

$$\begin{array}{r} 32 \\ 15 \\ +41 \\ \hline \end{array}$$



P.O. 2.02.01.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Solve the examples.

ACROSS

② $531 + 443$

③ $102 + 224$

⑤ $431 + 432$

⑥ $212 + 345$

⑧ $350 + 222$

DOWN

① $121 + 522$

② $524 + 412$

④ $341 + 354$

⑤ $404 + 411$

⑦ $247 + 441$

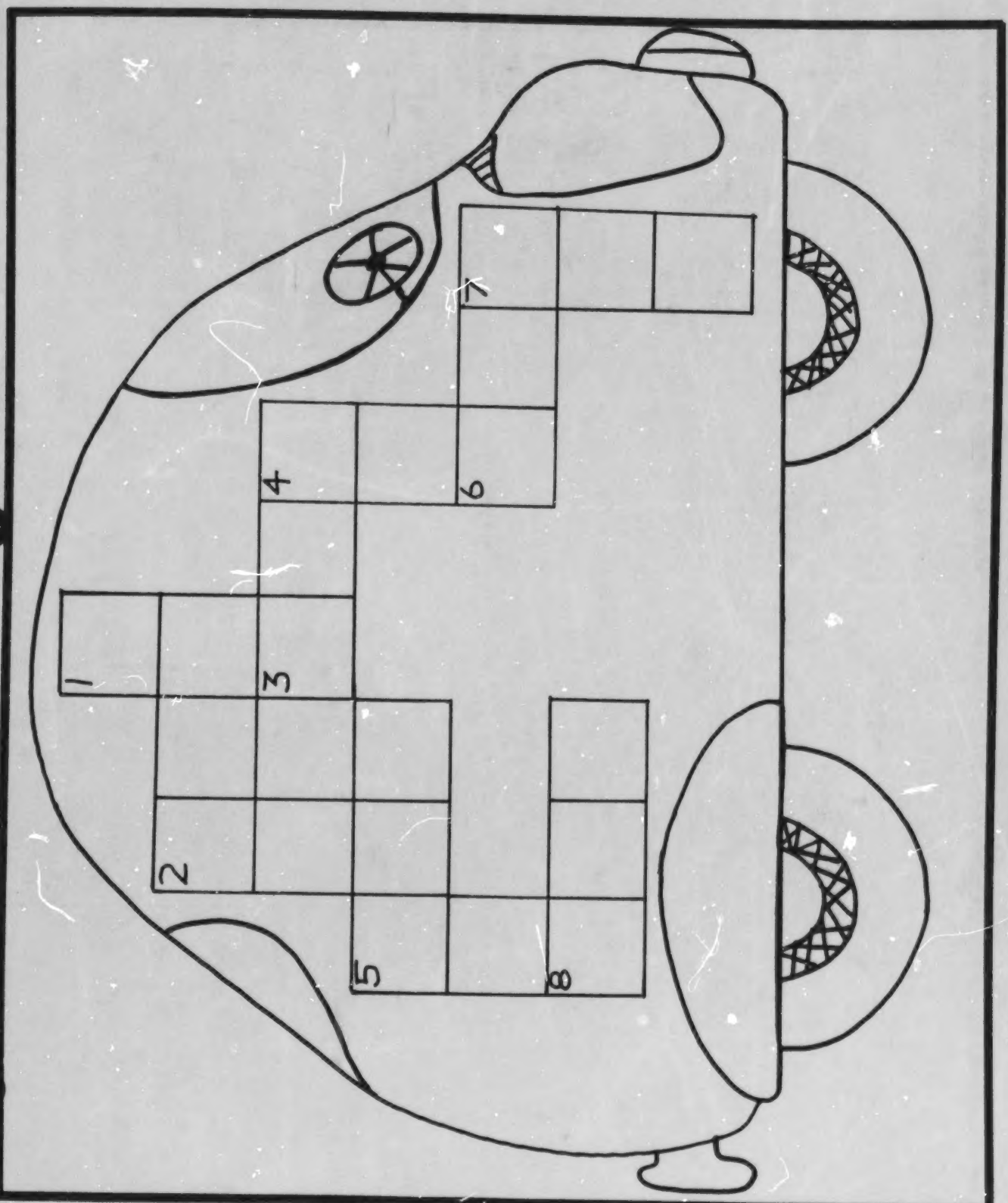
2.02.01.02

P.O. _____

NAME: _____ CLASS: _____ DATE: _____

163

Directions: Write the answer in puzzle.



162

P.O. 2.02.01.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Write the prices next to each picture add, and check.

1. +

2. +

3. +

4. +

5. +

6. +

P.O. 2.02.01.04

NAME: _____ CLASS: _____ DATE: _____

Directions: Find the total cost and check.

2.25

.71

$2.25
+ .71
_____
$.

1.46

.31

$.
+ .
_____

2.16

.53

$.
. _____
.

.33

1.46

$.
+ .
_____
$.

2.25

.53

$
. _____
$.

1.46

.53

$.
. _____
$.

.71

2.16

$.
. _____
$.

2.25

.31

$.
. _____
$.

2.10.02 QUARTERS, HALF DOLLARS

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.10.02.01A recognize and identify a quarter and a half dollar;

e.g.,

2.10.02.02B identify equivalent values of a quarter and a half dollar, using quarters, dimes, nickles and pennies;

e.g.,

In value

In value

2.10.02.03A solve story problems related to skills learned in this module.

e.g.,

Joe saved 15¢ on Monday and 10¢ more on Tuesday. How much did he save in all?

VOCABULARY	SYMBOLS
TERMS	
quarter	25¢
half-dollar	50¢

GETTING STARTED

Prepare real coins, punchout coins, or rexographed coin representations of pennies, nickels, and dimes. Distribute the coins to the students. Display a penny on the flannelboard and say, "What is the name of this coin? How much is it worth?" Continue this procedure with the nickel and the dime. Give the students time to examine and compare the coins. Ask them to note similarities and differences. Ask, "Which is the smallest? Which is the largest? Which coin will buy the least? The most? Can you tell how much the coin is worth by looking at its size?" Place the dime on the flannelboard and say, "This is a representation of a dime. It is worth 10¢. Who can show us another way to make 10¢?" Ask students to come to the flannelboard and use various combinations to represent 10¢. Continue this procedure for a nickel.

Distribute pennies, nickels, and dimes to pairs of students. Ask each pair to show six pennies and say, "How much money is this worth?" (6¢) Use two coins and show another way to make 6¢. (a nickel and a penny). Ask the pairs of students to display ten pennies and say, "How much money is this worth?" (10¢) "What coin on your desk is worth exactly 10¢?" (a dime) Ask students to show other combinations for 10¢.

2.10.02

2.10.02.01 recognize and identify the value of a quarter and a half-dollar

STRATEGY 1: Prepare large coin representations of a penny, nickel, dime, quarter, and half-dollar. Review the values of a penny, nickel, and dime. Draw a table on the chalkboard. e.g.,

penny	1¢	·
nickel	5¢	·····
dime	10¢	:::::

Display a quarter and ask students to identify this coin. Elicit from the students that this coin is called a quarter and it is worth 25¢. Ask, "How many pennies is a quarter worth?" (25) Add the quarter and its value to the table. Display a half-dollar and ask, "How much money is this coin worth?" Elicit from the students that this is a half-dollar and it is worth 50¢. Ask the students how many pennies 50¢ is worth. (50) Compare the quarter and the half-dollar and note the similarities and differences. "Which is larger? Which is smaller? What is the same?" (The color, the words "In God We Trust") "Which is worth more? less?" Ask the students what they think they could buy with a quarter and with a half-dollar.

STRATEGY 2: You will need play money (quarters and half-dollars) for each student or pair of students. Distribute the coins to the students. Display a quarter and ask, "What is the name of this coin?" Elicit from the students that it is a quarter. Say, "How much is a quarter worth?" Elicit from

STRATEGY 2: cont'd

the students that a quarter is worth 25¢. Ask the students to pick up a quarter from the coins on their desks. Point out that on one side of the quarter is a picture of George Washington and on the other side is a picture of an eagle. Ask, "What do you think you can buy with a quarter?" (accept reasonable answers) Display a half-dollar and repeat a similar sequence, noting characteristics of the half dollar (it is larger, has a picture of President Kennedy...). Ask the students what they could buy with a half-dollar.

2.10.02.02 **identify equivalent values of a quarter and a half dollar, using quarters, dimes, nickels, and pennies**

STRATEGY 1: Prepare sets of toy coins, including pennies, nickels, dimes, and quarters. Display a quarter to the class and ask its value. Say "Today we are going to see what other ways we can make 25¢. Ask the students to count out 25 pennies and to arrange them in groups of five. Say, "What one coin has the same value as the 25 pennies?" (a quarter) Ask the students to replace each group of five with a coin that has the same value. (a nickel) Say, "How many coins do you have now?" (5) "What is the name of the coin?" (nickel) "What one coin has the same value as five nickels?" (a quarter) Ask the students to replace four of the nickels with two coins of the same value. (They now have two dimes and a nickel.) Ask, "What one coin has the same value as these coins?" (a quarter) Continue this way for two dimes and five pennies, asking the students to find a few more equivalent values for the quarter.

2.10.02

STRATEGY 2: Prepare coin bags for each student. Each bag must contain at least 25¢ in any variety of coins. Set up a classroom auction with several small items labeled with price tags. Have each item sell for 25¢. Give the students a bag of coins that they may use when "shopping." Hold up an item and call out the price as a "quarter." Any student wanting to buy the item must have the correct amount of money. The students are to be told each item is worth a quarter and then they will count their change to make different combinations equivalent to a quarter. Write the combinations on a board chart as they occur.

e.g.,

Item	25¢
Ruler	2 dimes + 1 nickel
Book	25 pennies
Eraser	1 dime + 3 nickels
Chalk	1 dime + 15 pennies

2.10.02.03 solve story problems related to skills learned in this model

STRATEGY 1: Say, "Mrs. Cruz gave Jose and Tony each a quarter for cleaning her yard. Jose was very happy and said to Tony, 'Let's go to the toy store and buy something.' When they got to the store they found that all they could buy were toys from a machine that cost 10¢. Each boy had a quarter. What should they do?" Ask the students what they think the boys must do. Say, "What did the boys have and what did the boys need? How would you solve the

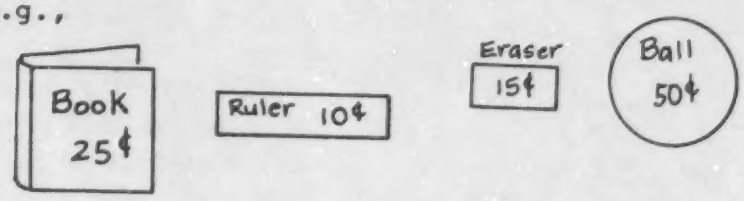
STRATEGY 1: cont'd

problem if you were Jose or Tony." Elicit from the students that the logical thing for Jose and Tony to do is to get change for the quarters. Establish from the students that for the quarter they can get different types of change equalling 25¢. Ask the students to name the various possible combinations.

STRATEGY 2:

Label several small objects for a classroom display.

e.g.,



Say, "Janet is going to the store to buy her sister a present. She has a half-dollar that her father gave her. She wants to buy the ball. Can she afford it?"

Elicit from the students that a half-dollar is worth 50¢. Ask the students to examine the prices of all the objects. Elicit that the ball is the most expensive; it is 50¢. Say, "If Janet wants to buy the present, she can because a half-dollar is equal to 50¢."

Make up similar situation problems for the students to practice.

P.O. 2.10.02.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Write the value of the coins shown.

_____

_____

_____

_____

Match the coin to its value

half dollar

quarter

P.O._ 2.10.02.02

NAME:_____ CLASS:_____ DATE:_____

Directions: Do the coins equal 25¢? Write Yes or No in the box.

P.O. 2.10.02.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Cut out the picture of the coin and match it to the problem.

1. Janet has two dimes and a nickel.
How much money does she have?
What coin is worth this much?

2. Jose worked for his aunt.
She gave him 5 dimes.
What coin is worth 5 dimes?

3. Tony counted the money in his bank.
He counted 25 pennies.
What coin is worth this much?

4. Maria has 5 nickels.
What coin can she exchange for them?

2.03.01 SUBTRACTION THROUGH 3-DIGIT NUMBERS WITHOUT REGROUPING

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.03.01.01A subtract a 2-digit number from a 3-digit number in horizontal and vertical format and check;

e.g.,

$$\begin{array}{r} 548 \\ -\ 25 \\ \hline 523 \end{array} \qquad 548 - 25 = 523$$

$$\begin{array}{r} \text{check} \\ 25 \\ +\ 523 \\ \hline 548 \end{array}$$

2.03.01.02A subtract a 3-digit number from a 3-digit number in vertical and horizontal format and check;

e.g.,

$$\begin{array}{r} 548 \\ -\ 325 \\ \hline 223 \end{array} \qquad 548 - 325 = 223$$

$$\begin{array}{r} \text{check} \\ 325 \\ +223 \\ \hline 548 \end{array}$$

2.03.01.03B subtract money through $9.99 and check;

e.g.,

$$\begin{array}{r} \$4.83 \\ -\ 2.71 \\ \hline \$2.12 \end{array} \qquad \begin{array}{r} \text{check} \\ \$2.71 \\ +\ 2.12 \\ \hline \$4.83 \end{array}$$

2.03.01.04B solve story problems related to skills learned in this module.

e.g.,

Mary had $4.83. She spent $2.71. How much money did she have left?

	check
$4.83	$2.71
- 2.71	+ 2.12
$2.12	$4.83

2.03.01

VOCABULARY

TERMS	SYMBOLS
dollar sign	$
decimal point	.

GETTING STARTED

Write the problem $\begin{array}{r} 58 \\ -26 \end{array}$ on the chalkboard. Point to the minus sign and ask, "What does this mean?" Say, "We take away to find how many are left." Read the problem 58 take away 26. Say, "How many tens and ones are there? (five tens, eight ones) How many tens and ones are to be taken away?" (2 tens, 6 ones).

Ask the students to look at the ones place in 58, and say, "How many ones are there?" (8) "How many ones are in 26? If we take away 6 from 8 how many are left?" (2) Record 2 on the chalkboard in the ones place. Say, "How many tens are in 58?" (5) "How many are we going to take away?" (2) "If we take 2 away from 5 how many are left?" (3) Record 3 in the tens place. Say, "58 take away 26 is 32."

e.g., $\begin{array}{r} 58 \\ -26 \\ \hline 32 \end{array}$

Using interlocking cubes or small counting objects show 14 cubes. Ask a student to take away six cubes and ask what number is left? (8) Write this subtraction example on the chalkboard:

$\begin{array}{r} 14 \\ -\ 6 \\ \hline 8 \end{array}$ Reread this to class.

Ask the same student to return the six cubes to their original place. Point out to the students that the same number that was taken away was just returned or added. Write $\begin{array}{r} 8 \\ +\ 6 \\ \hline 14 \end{array}$ on the chalkboard. Explain to the students that we can always check our subtraction answer by adding.

2.03.01

2.03.01.01 **subtract a 2- digit number from a 3-digit number in horizontal and vertical format and check**

STRATEGY 1: Distribute squared material hundreds, tens and ones to each student. Write 548 on the chalkboard. Say, "On your desk show the number that is written on the chalkboard using your squared material. Subtract 25 from that number." Write 548 on the chalkboard.

$$\underline{-\ 25}$$

Say, "What is left?" Elicit from the students that 523 is left. Call one student to the chalkboard to write the difference under the example. Repeat this procedure using other examples. Say, "How do we know if our answer is correct?" Elicit from the students that if we add the difference to the subtrahend, the answer will equal the minuend. Say, "We will check all of our subtraction examples by addition."

STRATEGY 2: Write the following example on the chalkboard:

$$\begin{array}{rcl} 548 & = & 500 + 40 + 8 \\ \underline{-\ 25} & = - & \underline{\qquad\quad 20 + 5} \\ & & 500 + 20 + 3 \end{array}$$

Say, "What is the difference?" Elicit from students that 20 + 3 = 23. Repeat using other examples. Elicit from the students that we can shorten the process by simply subtracting without expanding the number. Say, "How do we know if our answer is correct?" Elicit from the students that if we add the difference to the subtrahend, the sum should be the same number as the minuend. Ask the students to check all subtraction examples by use of addition.

2.03.01

2.03.01.02 **subtract a 3-digit number from a 3-digit number in horizontal and vertical format and check**

STRATEGY 1: Prepare a hundreds, tens, and ones place value pocket chart and squared materials. Display 582 in the pocket chart. Write this number on the chalkboard in standard and expanded form.
e.g.,

582 = 500 + 80 + 2

Say, "We are going to take away 261." Write this underneath the first number as an example.
e.g., 582 = 500 + 80 + 2
$\underline{-261} = \underline{200 + 60 + 1}$

Using the materials, say, "How many ones shall I take away?" (1) "How many are left?" (1) "How many tens shall I take away?" (6) "How many are left?" (2) "How many hundreds shall I take away?" (2) "How many are left?" (3) Write 321 = 300 + 20 + 1 under the example.
Say, "We can check our subtraction example by addition. First we look at our subtration example and find the subtrahend." Point to 261. Write 261 on the chalkboard. Say, "Find the difference in the subtraction example." Select a student to point to 321. Say, "We add the two numbers together and if the sum is correct and matches the minuend we know our example is correct."

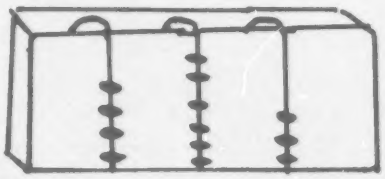
Write the following on the chalkboard:

$$\begin{array}{r} 582 \\ \underline{-261} \\ 321 \end{array} \qquad \begin{array}{r} 261 \\ \underline{+321} \\ 582 \end{array}$$ Select a student to add.

Say, "What was the sum?" Point to 582. "What number is in the minuend?" Point to 582. "Are they the same?" Then we know our subtraction example is correct.

2.03.01

STRATEGY 2: Write the example 463 - 241 horizontally on the chalkboard. Use an abacus or draw a representation on the chalkboard.
e.g.,



Display the markers for 463. Say, "We are going to take away 241 from 463." Working with the ones first, say, "How many ones should we take away?" (1) "How many ones are left?" (2) "How many tens must we take away?" (4) "How many are left?" How many hundreds will we take away?" (2) "How many are left?" (2) Record the work on the chalkboard, e.g., 463 - 241 = 222.

To check, use the checking strategy developed in Strategy 1. Repeat this procedure using other numbers.
e.g.,

478 - 264 = ☐ 586 - 234 = ☐ 869 - 435 = ☐

2.03.01.03 **subtract money through $9.99 and check**

STRATEGY 1: Label a book with a price tag. Present the following problem to the class:

> "John had $3.85. He bought a new notebook for $2.43. After he bought the book, how much money did he have left?"

Say, "How should we solve this problem? We subtract when we want to know how much is left." Write the problem on the chalkboard.
e.g.,

$$\begin{array}{r} \$3.85 \\ -\ 2.43 \\ \hline \$1.42 \end{array}$$

STRATEGY 1: cont'd

Say, "When you have money values over one dollar, you need to use a dollar sign ($) and a decimal point (.). You must keep the decimal points in line. Subtracting money values is the same as subtracting whole numbers. Select a student to perform the subtraction.

Say, "We check subtraction by addition. How much money did we spend on the book?" Write $2.43 on the chalkboard. Say, "How much money do we have left?" Write $1.42 under the $2.43.

e.g.,
$$\begin{array}{r} \$2.43 \\ +1.42 \\ \hline \end{array}$$

Select a student to add. Say, "Is the sum the same as the amount of money we started with? Yes, the sum is $3.85 and that is the amount we started with. We know we are right."

Repeat this procedure using other examples. Label other classroom items.

e.g.,

$2.86 ——> eraser $5.85 ——> chalkboard

Students start with $8.67 and subtract the amount of the items they purchased and check.

STRATEGY 2: Have available some party favors, e.g., hats, candles, balloons. You will need punched out or rexographed money (in bills and coin representation) for your students. Give each student an "allowance" of $3.75. Allow the students to count and sort their money. Say, "We are going to do some birthday party shopping." Display a box of candles and say, "These candles cost $1.23. If we buy them, how much money will we have left for other party favors?" Ask the students to take away $1.23 from their "allowance." Say, "How did you arrive at this answer?"

2.03.01

STRATEGY 2: cont'd (subtraction) Write the example on the chalkboard.

e.g.,
$$\begin{array}{r} \$3.75 \\ -1.23 \\ \hline \$2.52 \end{array}$$

Show the students how to line up the decimal point values. Reinforce that a $ and . should be in the answer. Ask the students to check their answers using the method in Strategy 1.

Continue to "buy" a few more party items.

2.03.01.04 solve story problems related to skills learned in this module

STRATEGY 1: Prepare squared materials for each student. Say, "Mr. Brown had 567 newspapers Monday morning. When he counted them Monday afternoon, he had 136 newspapers left. How many papers did he sell?" Ask the students about the information given to them. Say, "How many newspapers were there in the morning? How many were left over? How shall we go about finding out what was sold? What do we do when we want to find out what's left over?" (subtract)

Record the information on the chalkboard. Set up the subtraction problem. Ask the students to estimate the answer. Allow the students to use their materials to arrive at the answer and check their work. Compare the answer and the estimate. Review the steps involved in solving the story problem.

STRATEGY 2: Set up a store situation. Have some articles for sale, and label each with a price tag.

book	shirt	doll	pencils and crayons
$1.25	$3.85	$4.60	$2.36

STRATEGY 2: cont'd

Write the following problem on the chalkboard:

"John had $7.85. His mother told him to buy his little sister a doll for her birthday. How much money does John have left?"

Say, "What information is given in the problem?" (John had $7.85 and will spend $4.60.) "What information does the problem ask you to find out?" (How much money will John have after he buys the doll?) "How would you solve this problem? What are the key words in the problem?" Elicit from the students that they need to subtract to find out how much money is left. Ask a student to write the problem on the chalkboard, solve and check.

e.g.,

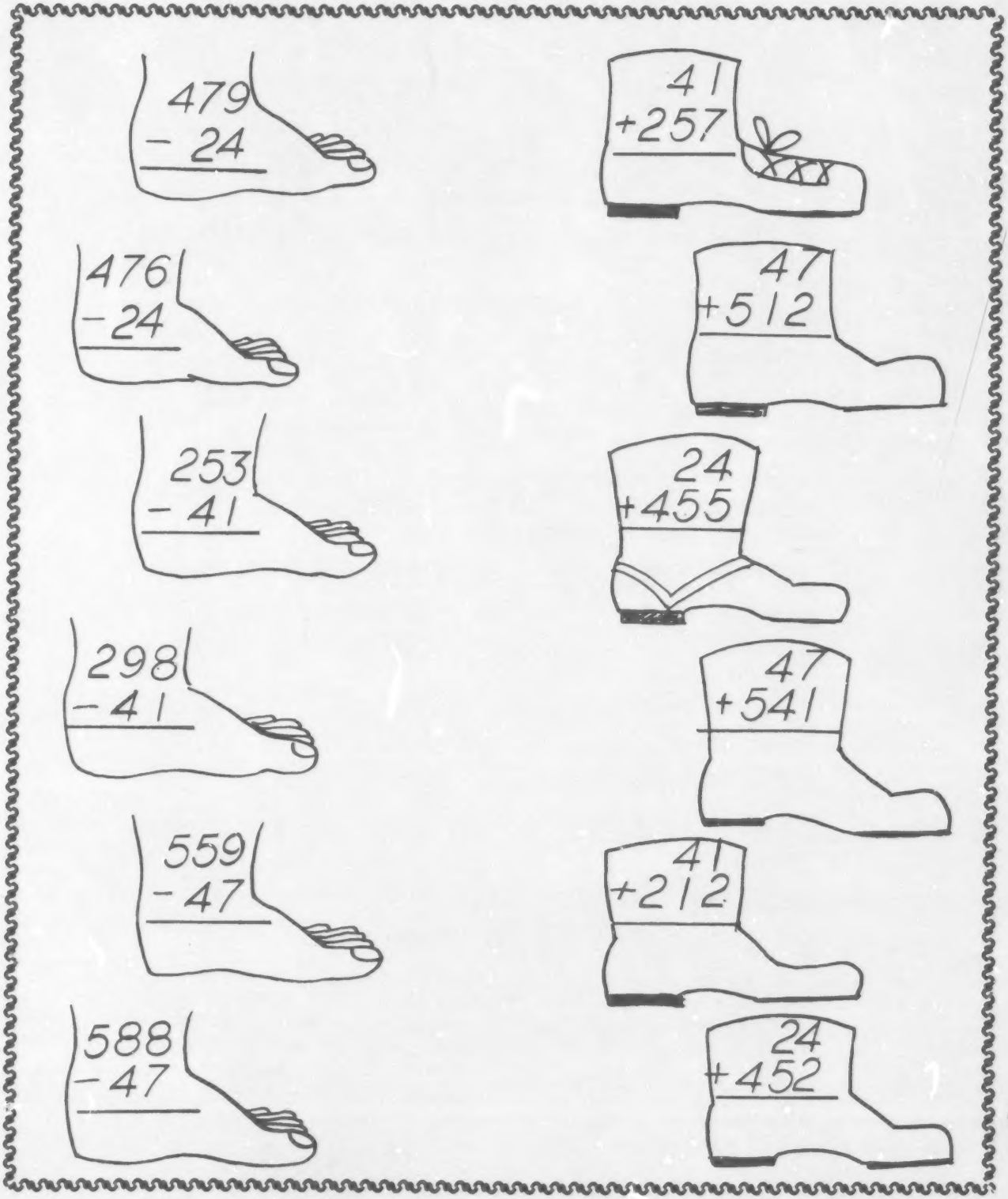
	check
$7.85	$4.60
- 4.60	+3.25
$3.25	$7.85

Repeat this procedure, using similar subtraction problems.

P.O. 2.03.01.01

NAME:_____ CLASS:_____ DATE:_____

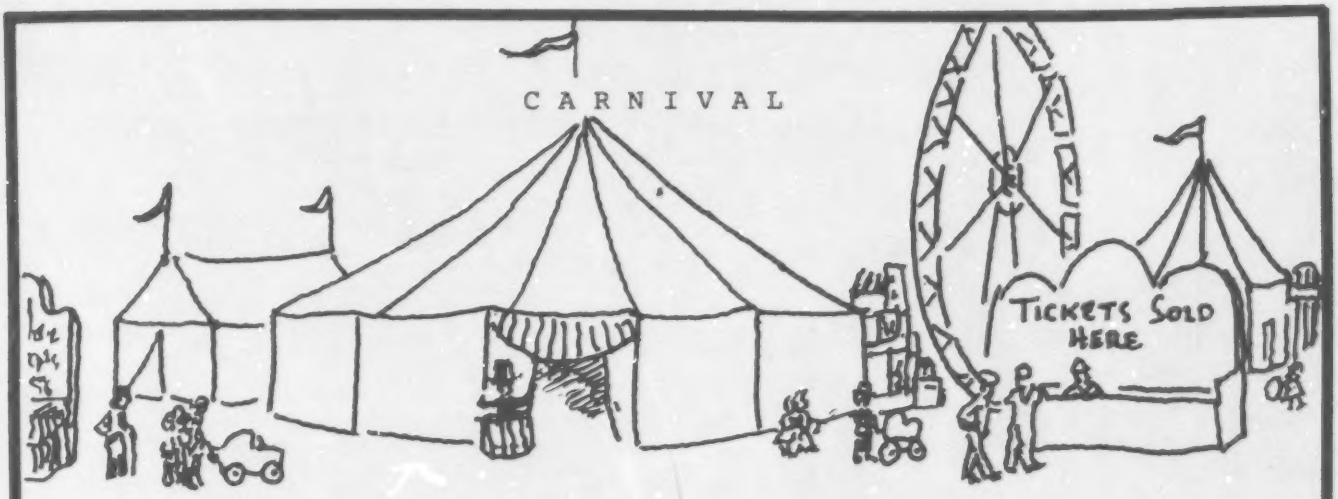
Directions: Subtract. Add. Match the shoe to the foot by matching the subtraction example with its check.



P.O. 2.03.01.02

NAME:_____ CLASS:_____ DATE:_____

Directions: Find the difference. Check your answers by adding.



Find the differences. Check your answers by addition.

Ex. 368
- 242
126

1. 468
- 217 +____

2. 983
- 471 +____

3. 881
- 450 +____

4. 983
- 752 +____

5. 489
- 254 +____

6. 867
- 235 +____

7. 999
- 775 +____

8. 848
- 725 +____

P.O. 2.03.01.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Find the difference. Place the answers in the puzzle box at the bottom of the page.

1).

H	T	O
5	7	8
- 2	3	4

2)

H	T	O
9	8	6
- 3	5	4

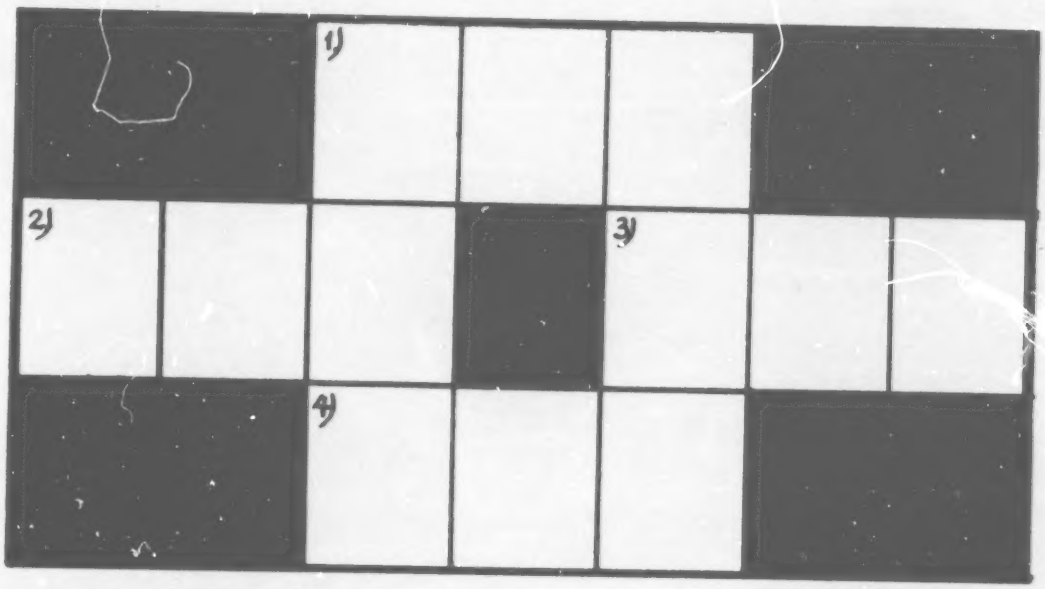
3).

H	T	O
9	8	8
- 7	4	8

4).

H	T	O
8	6	4
- 4	3	2

Put the answers in the puzzle box.



P.O. 2.03.01.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Solve each problem to find each new price.

TOY DEPARTMENT
BIG SALE
MUST SELL
BIG SAVINGS

AIRPLANES

Price $5.62

Save - 2.41

New Price _____

CRAYONS

Price $2.56

Save - 1.23

New Price _____

GAME ZIPPO

Price $8.78

Save - 4.25

New Price _____

TEDDY BEAR

Price $8.56

Save - 3.25

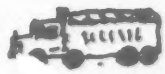
New Price _____

Mr. ROBOT

Price $7.34

Save - 1.12

New Price _____

TRUCK 

Price $4.79

Save - 2.68

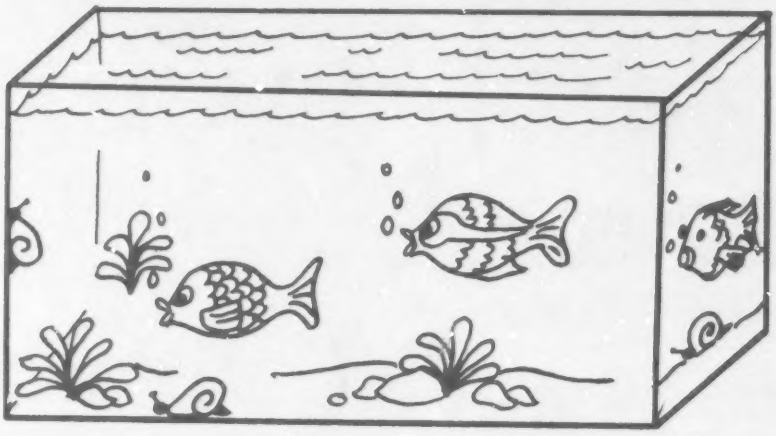
New Price _____

P.O. 2.03.01.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Solve each problem.

STORYVILLE AQUARIUM



1. At the Storyville Tropical Aquarium there are many kinds of fish. Monday morning the manager counted 325 angel fish. By Wednesday he sold 113 of them. How many angel fish did he have left?

2. Thursday morning Jim, the manager, decided to put the gold fish on sale. The price for one goldfish is $2.89. He made the sale price $1.75. How much money would you save?

3. Jim counted 485 guppies. That afternoon he sold 234 of them. How many were left?

4. Jane and Donald went to the Aquarium. They wanted to buy 2 guppies. The guppies cost $1.62. If they gave the manager $2.75, how much change would they get?

2.01.07 ROUND NUMBERS THROUGH 99 TO THE NEAREST TEN

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.07.01A round a 2-digit number, having its ones digit less than 5, to the nearest ten; e.g.,

24 rounds to 20
13 rounds to 10

2.01.07.02A round a 2-digit number, having its ones digit more than 5, to the nearest ten; e.g.,

86 rounds to 90
17 rounds to 20

2.01.07.03A round a 2-digit number, having 5 in the ones place, to the nearest ten. e.g.,

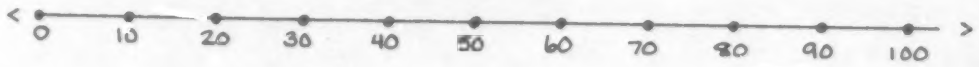
15 rounds to 20
85 rounds to 90

GETTING STARTED

Prepare ten index cards numbered from 10 through 20. Place the index cards on the chalkboard ledge. Say, "17." Ask a student to tell the class if 17 is closer to the 10 or the 20.

Continue this procedure, using other numbers from 10 through 20.

Draw a number line on the chalkboard numbered 0 through 100.
e.g.,



Mark intervals for 10 through 90 by tens. Say, "32." Ask a student to mark the number line to show where 32 belongs.

Repeat this procedure, using other numbers.

2.01.07

2.01.07.01 round a 2-digit number, having its ones digit less than five, to the nearest ten

STRATEGY 1: Draw a number line on the chalkboard, e.g., 10,11,12,13,14,15,16,17,18,19,20,21,22...30. Point to 13. Ask students if 13 is nearer to 10 or to 20. Have students count backward and forward to see that 13 is nearer to 10. Say, "13 rounds to 10 because 13 is closer to 10 than to 20."

Repeat with 22, 14, 12, 23, 24, 11, 21.

Draw another number line with other decades, e.g., 30 to 40, 40 to 50, and continue this procedure.

STRATEGY 2: Put a series of prices on the chalkboard, e.g., 14¢, 23¢, 42¢, 61¢, 72¢, 84¢. Tell the students, "These are prices of toys in the local store. We want to know about how many dimes we will need to buy each of them. 14¢ is about 10¢. Since it is nearer to 10¢ than to 20¢, we will need one dime." Ask the students to round the other prices to the nearest 10¢

Repeat with other prices.

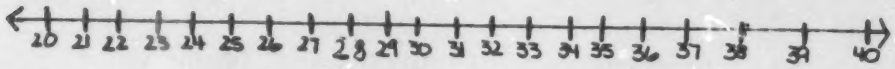
2.01.07.02 round a 2-digit number, having its ones digit more than five, to the nearest ten

STRATEGY 1: Say, "We have 36 students in our class. I want to buy a box of raisins for each student. The raisins

STRATEGY 1: cont'd

come in packages of ten. If I buy three packages I will only have 30 boxes of raisins. Will that be enough?" (No) "If I buy four packages I will have 40 boxes of raisins. Will that be enough?" (Yes) "I will need about 40 boxes for everyone to have raisins." Draw a number line, numbered from 20 through 40, on the chalkboard.

e.g.,

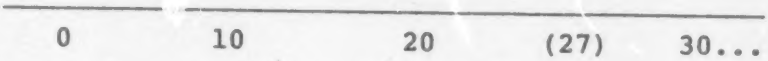


Ask a student to come to the chalkboard and circle the number 36. Ask another student to point to 30 and a third student to point to 40. Say, "Is 36 closer to 30 or 40?" (40) "We say 36 rounds to 40. That means 36 is about 40, or closer to 40 than it is to 30."

Continue this procedure, using other numbers having their ones digit more than five. Be sure to use the term "rounds."

STRATEGY 2: Ask the students to count by tens to 100. Draw a number line on the chalkboard and number it in multiples of ten. Say, "I have 27¢ in my pocket. Is that closer to 20¢ or 30¢?" Ask a student to come to the chalkboard and place 27 in its approximate place on the number line.

e.g.,



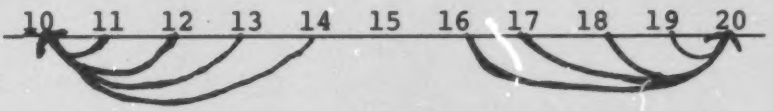
Continue this procedure, using other numbers.

2.01.07.03 round a 2-digit number, having five in the ones place, to the nearest ten

STRATEGY 1: Draw a number line, numbered 10 through 20, on the chalkboard (leave large spaces between the numbers).

Ask the students to count from 10 to 20. Ask the students how many numbers come between 10 and 20 if we do not count 10 and 20. (9)

Ask the students to use chalk and draw arrows to indicate to which end of the line each number belongs.

e.g., 

Show the students that 15 is the middle number.

Continue this procedure, using several decades, e.g., 30 through 40, 40 through 50. Elicit that 35 and 45 are the middle numbers. Say, "A number that ends in five is in the middle of a decade, e.g., 25 is between 20 and 30, and always rounds to the next higher decade, e.g., 25 rounds to 30. To what would 35 round?" (40)

STRATEGY 2: Draw a number line from 20 to 50 on the chalkboard. Use colored chalk to designate 25, 35, and 45. Say, "Why are these numbers entered in a different color?" Elicit that these are the "middle" numbers. Say, "Why does this make these numbers special?" Elicit that these numbers round to the next higher decade, e.g., 25 rounds to 30.

Prepare a set of cards numbered 25 through 85 in multiples of five and a set numbered 30 through 90 in multiples of ten. Make enough duplicates of the cards numbered in multiples of five to provide all

STRATEGY 2: cont'd

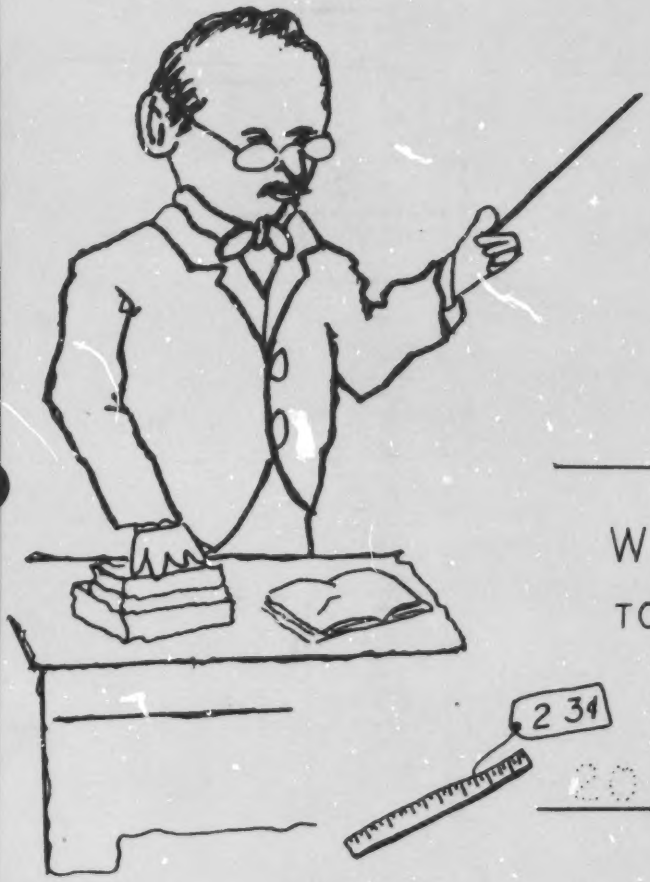
but seven students with cards. Give these seven students cards with the multiples of ten written on them. Ask the seven students to go to the front of the room, face the class, and show their cards to the class. Ask one of the seated students to take his/her card and go and stand behind the number to which he/she would round his number. Ask the student to explain why he/she elected to stand behind that particular number. Give each student a chance.

P.O. 2.01.07.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Round these numbers to the nearest ten.

WHAT'S THE NEAREST TEN?



24 - 20 _____ 43 - _____

32 - _____ 23 - _____

14 - _____ 11 - _____

12 - _____ 22 - _____

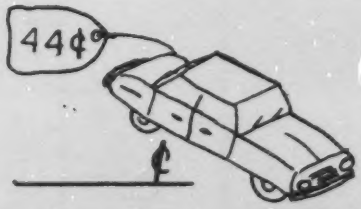
33 - _____ 34 - _____

44 - _____ 31 - _____

WHAT'S THE PRICE TO THE NEAREST DIME?

20 ¢

_____ ¢



_____ ¢

_____ ¢

P.O. 2.01.07.02

NAME:_____ CLASS:_____ DATE:_____

Directions: Round each number.

IN	OUT
26	30
37	40
68	70
77	80
88	90

IN	OUT
79	80
68	
46	
38	
59	

IN	OUT
86	90
46	
57	
37	
89	

IN	OUT
76	80
69	
96	
87	
29	

IN	OUT
16	20
47	
18	
27	
59	

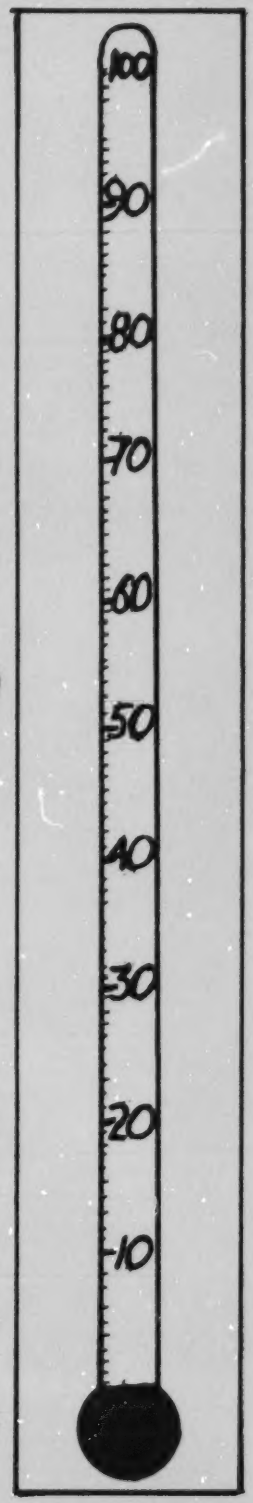
IN	OUT
19	20
28	
46	
27	
96	

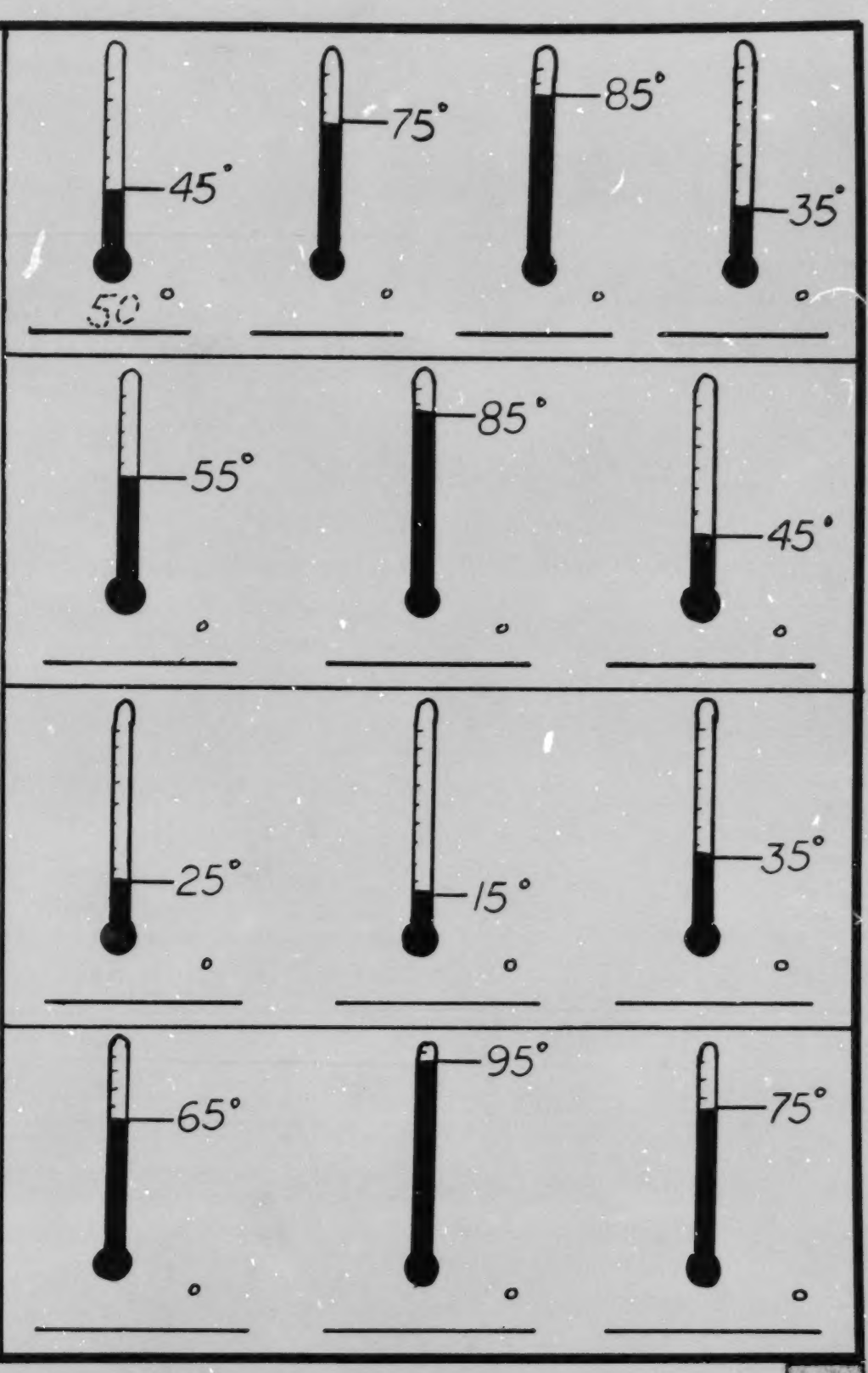
196

T.O. 2.01.07.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Round the temperatures to the nearest ten.





2.10.03 TEMPERATURE - CELSIUS AND FAHRENHEIT THERMOMETERS

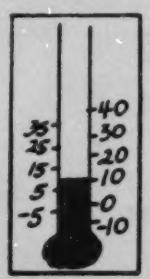
(1-2 lessons)

PERFORMANCE OBJECTIVES

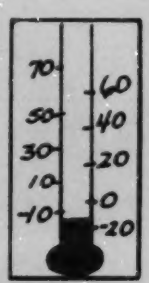
The student will be able to...

2.10.03.01B explain the meaning of the word degree and identify its symbol;
e.g.,
a unit for measuring temperature
20°

2.10.03.02B identify the degree scale as shown on a Celsius thermometer and read to the nearest five degrees;
e.g.,



2.10.03.03B recognize and read a Fahrenheit thermometer to the nearest ten degrees.
e.g.,



2.10.03

VOCABULARY

TERMS	**SYMBOLS**
degree	°
Fahrenheit	
Celsius	

GETTING STARTED

Bring in various pictures of different weather conditions, e.g., winter - snow scene, skiing, sleding... spring - planting, playing outdoors, trees in bloom... summer - swimming, sailing, playing at the beach... fall - leaves turning colors, raking leaves. Show each picture to the class. Ask, "What is happening in this picture? What is the weather like? Do you think it is hot or cold? Why do you think it is hot? Cold?" Elicit the various ways of depicting the temperature, e.g., clothing. Elicit what changes occur in our homes when the temperature goes up; down.

On a set of flash cards, print words that represent hot or cold objects. e.g.,

ice cream
coffee

Show each card to the students and say, "When you think of this object, do you think of hot or cold?"

Continue using flash cards to be sure the students understand hot, hotter, cool, cold and colder.

2.10.03

2.10.03.01 **explain the meaning of the word degree and identify its symbol**

STRATEGY 1: Put various symbols on the chalkboard, e.g., $, ¢, +, -, =. Select different students to explain what each one represents. Elicit a dollar sign, a cents sign, plus or addition, minus or subtraction, multiplication or times, and equal. Say, "We have signs or symbols that represent many things. We have a special symbol when we are talking about temperature. This special symbol is called a degree and is written like a small circle." Draw a degree symbol on the chalkboard. Say, "We use a degree for the measurement of temperature. If the number of degrees goes up, the temperatue is getting warmer. If the number of degrees goes down, the temperature is getting colder.

Make a set of flash cards with various temperature movements on each.

e.g.,

30° → 16°	25° → 50°

25 degrees to 50 degrees. The temperature is getting warmer.

Ask a student to read the cards and tell the class whether the temperature is geeting warmer or colder.

STRATEGY 2: Write the word and symbol for degree on the chalkboard.

e.g., ° = degree

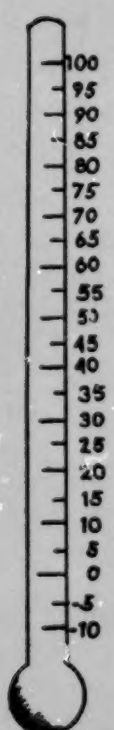
Say, "We have a special symbol to use when we discuss temperature. This symbol is called a

STRATEGY 2: cont'd

degree. The number of degrees tells us how warm or cold the temperature is." Give the class several examples. Say, "A temperature of 90°." Elicit that a temperature outdoors of 90° is hot. Say, "A temperature of 30°." Elicit that a temperature of 30° is cold. Say, "We use temperature for purposes other than weather. At what other times do we use temperature?" Elicit cooking or baking, body temperature, water. Give the class two different temperatures and ask a student to tell the degrees and say if the temperature is getting warmer or colder.
e.g., 80° - 50° 80 degrees to 50 degrees is getting colder.

2.10.03.02 **identify the degree scale as shown on a Celsius thermometer and read to the nearest five degrees**

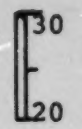
STRATEGY 1: Prepare a display Celsius thermometer.
e.g.,



STRATEGY 1: cont'd

Go over the important temperatures on the Celsius thermometer, e.g., boiling, freezing, body temperature, room temperature ...

As each temperature is mentioned, ask a student to come to the display board and point it out on the thermometer. Say, "The thermometer is numbered in grades of 10 degrees each." Point out the short line between each 10 degree line. Say, "This short line is halfway between the two ten degree lines. What does this line represent?" Elicit that it represents 5°. e.g.,



Short line would be halfway between 20° and 30°. It is therefore, 25°.

Repeat this procedure pointing to various short lines and asking the students to name degrees.

STRATEGY 2:

Use a large display Celsius thermometer with a moveable ribbon insert. Give each student an individual thermometer with gradations of 5°. Show the class various basic temperatures on the display thermometer, e.g., boiling, freezing, body temperature, room temperature. Have the class reproduce the various temperatures on their thermometers. Move the ribbon on the display thermometer to various gradations and have the students tell if it is warm or cold.

e.g., 35° warm 65° hot
15° cold -5° very cold

Have the students reproduce the temperatures on their themometers.

Repeat this procedure.

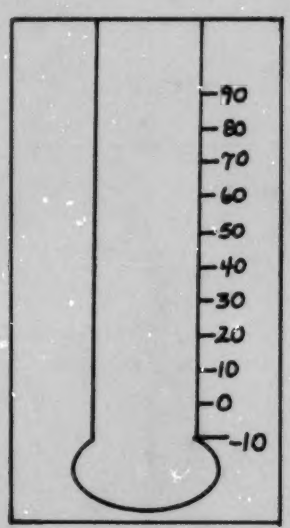
Note: Water freezes at 0° C. We are comfortable at 25°C. Our body temperature is 37°C.

STRATEGY 2: cont'd

Helpful Hint: To make a ribbon thermometer, reproduce the drawing on page 22S.5 on light oaktag. Make one slit near the top of the oaktag and one near the bottom. Use two different color ribbons stapled together for each thermometer. Red and white ribbon are best. (Fabric cement saves time.)

2.10.03.03 recognize and read a Fahrenheit thermometer to the nearest ten degrees

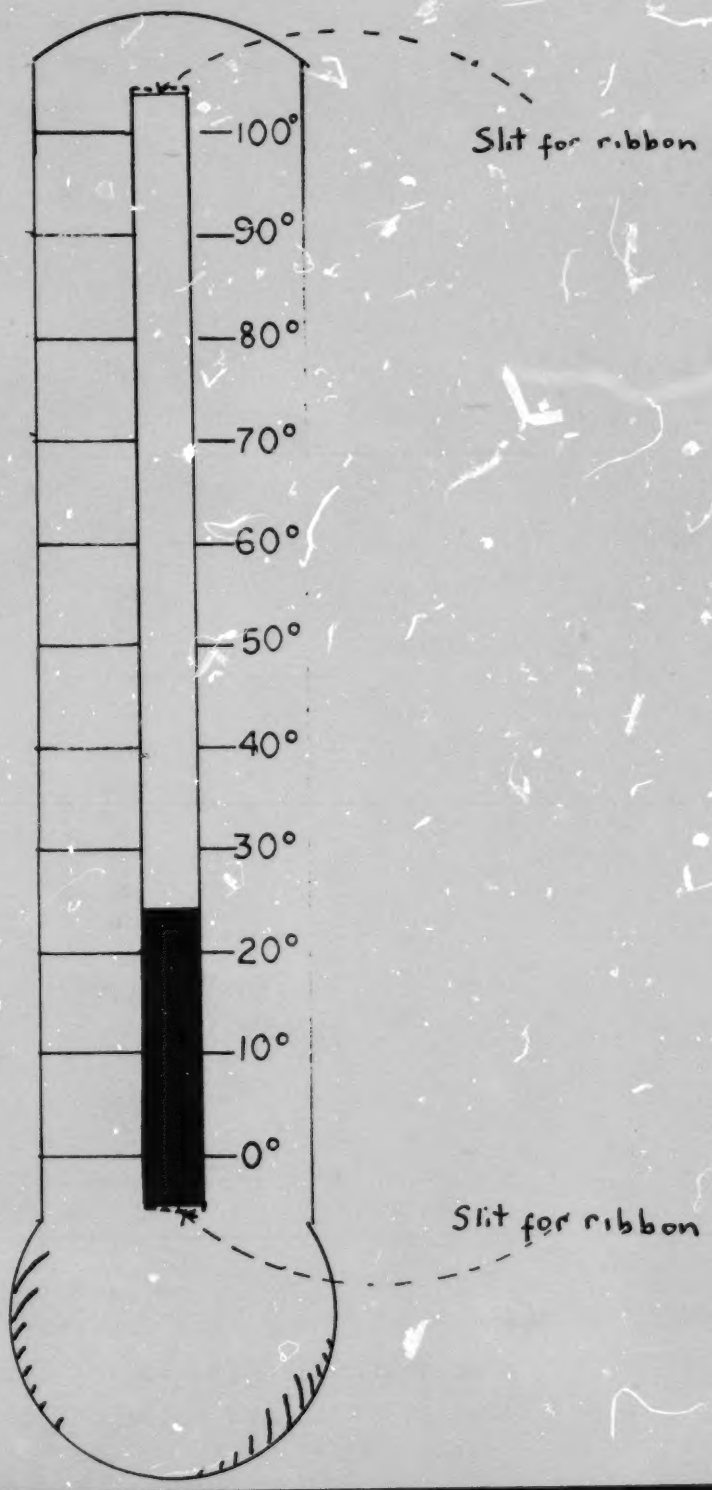
STRATEGY 1: Make a display chart of a Fahrenheit thermometer. Place on it the important or basic temperatures. e.g.,



Point out different temperatures on the Farenheit thermometer, e.g., boiling, freezing, body temperature and room temperature. As each temperature is read, ask a student to come to the display chart and point out that temperature.

P.O. 2.10.03.02

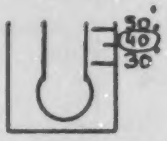
NAME: _____ CLASS: _____ DATE: _____



STRATEGY 1: cont'd

Show that this thermometer is written in grades of 10 degrees each. Point out that the small line between each 20 degrees is halfway between each 20 degree line. Elicit that half of 20 degrees is 10 degrees.

e.g.,

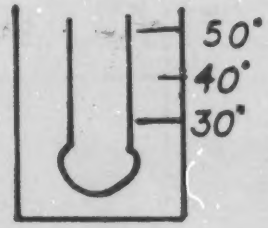


Say, "If you add 10° to the lower number or subtract 10° from the higher number, you will know the temperature in between the two markings.

Repeat this procedure.

STRATEGY 2: Prepare a large display thermometer and display chart. Give each student an individual thermometer. Bring in the newspaper weather reports. List the temperature on the display chart.

e.g.,



Date	Temperature
Nov. 4	39°
Nov. 5	48°
Nov. 6	42°

After you have charted the temperatures, show the students how to read this to the nearest ten degrees. Say, "On Nov. 4, the temperature was 39°. We want to chart that to the nearest 10°. Where would we chart 39°?" Elicit that 39 is closest to 40°, therefore, we would chart Nov. 4 at 40°.

Ask the students to find 40° on their thermometers.

Repeat this procedure.

P.O. 2.10.03.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Circle the word that matches the picture.

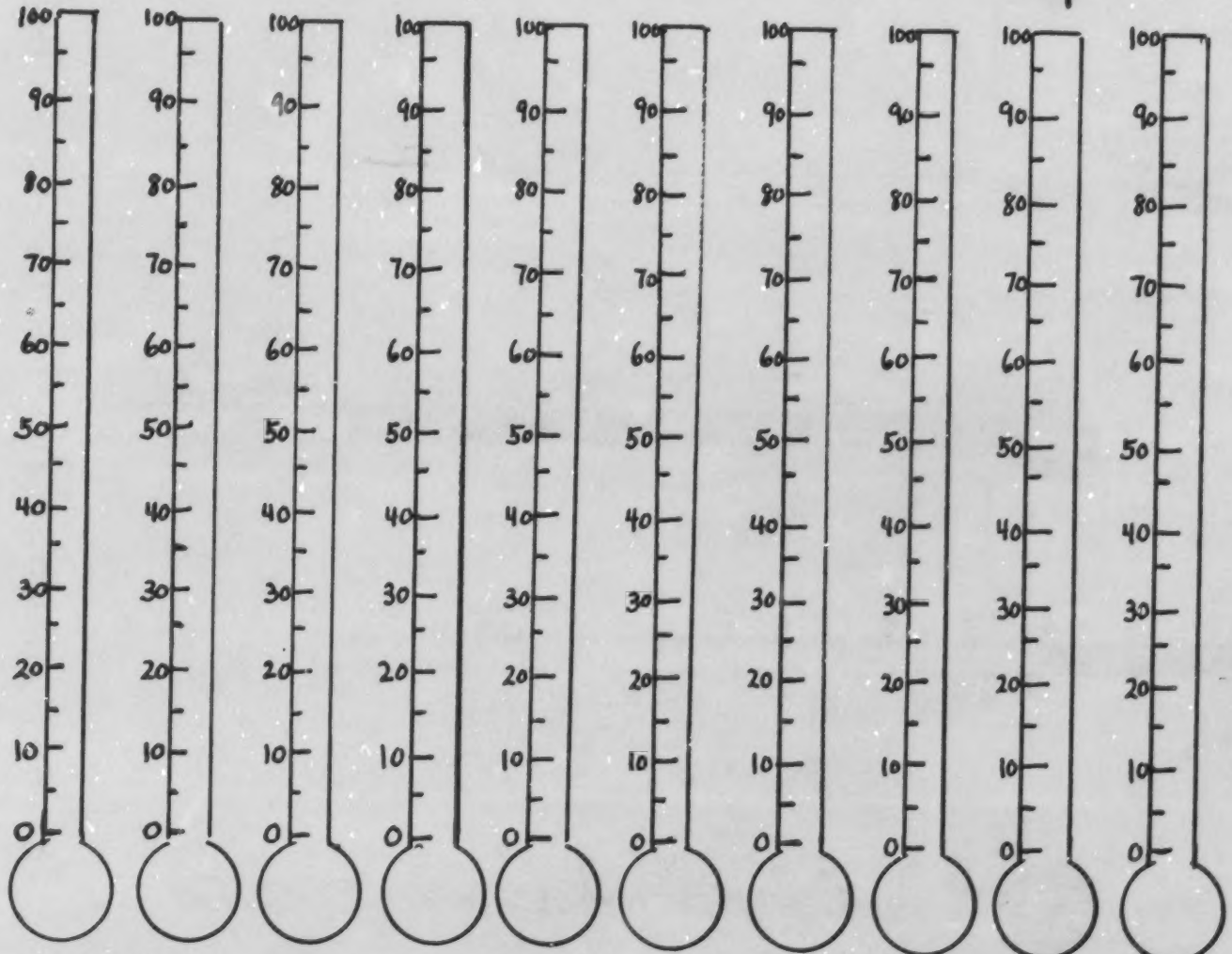
EXAMPLE 30° → 50° (hotter) colder	75° → 50° hotter colder
50° → 65° hotter colder	13° → 17° hotter colder
100° → 90° hotter colder	70° → 69° hotter colder
20° → 35° hotter colder	-5° → 10° hotter colder

P.O. 2.10.03.02

NAME:_____ CLASS:_____ DATE:_____

Directions: Use your crayon to color each thermometer.

Make the thermometer tell the story. With your crayon fill in each thermometer to the correct temperature.



30° 70° 50° 90° 35° 10° 40° 15° 75° 55°

183

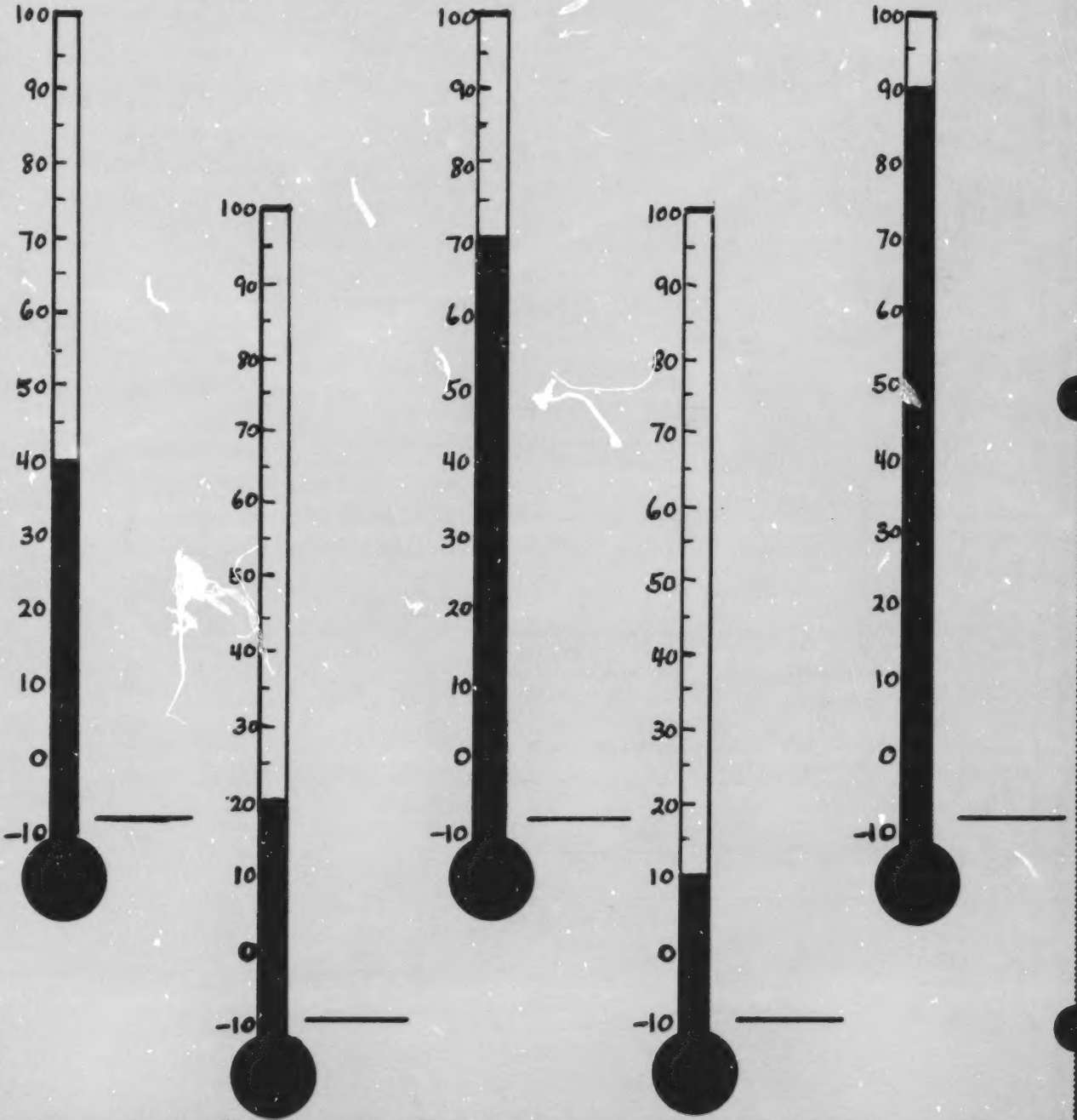
- 22b -

P.O. 2.10.03.03

NAME:_____ CLASS:_____ DATE:_____

Can you tell what the thermometer says?

Can you tell what the thermometers say?
hint: Be sure to use the right symbol.

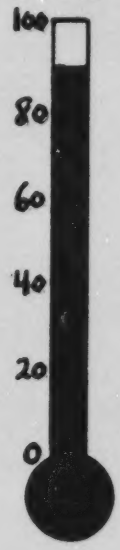


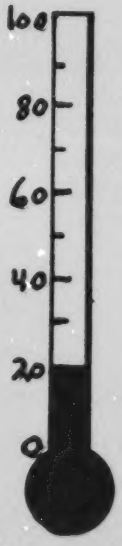
P.O. 2.10.03.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Match the thermometer to the right clothing. Be sure to record the temperature.

Match the thermometer to the right clothing. Be sure to record the temperature.





2.02.02 ADDITION OF 3-DIGIT NUMBERS WITHOUT REGROUPING

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.02.02.01A add two 3-digit numbers without regrouping (exchanging) and check; e.g.,

	check
124	131
+ 131	+124
255	255

2.02.02.02B add three or more 3-digit numbers without regrouping (exchanging) and check; e.g.,

	check
111	121
121	232
+ 232	+ 111
464	464

2.02.02.03B compute addition examples using numbers through $9.99 and check; e.g.,

	check
$1.62	$2.17
+2.17	1.62
$3.79	$3.79

2.02.02.04A solve story problems related to skills learned in this module.

e.g.,

Mr. Jones drove 162 miles one day and 217 miles another day. How many miles did he drive all together?

	check
162	217
+ 217	+162
379 miles	379

GETTING STARTED

Prepare 18 hundreds squared cards, 18 tens strips and 18 units squares. Tape 3 hundreds cards, 4 tens strips, and 5 units squares on the chalkboard. Write a plus sign (+) under and to the left of the 3 hundreds cards. Then tape 2 tens strips under the 4 tens strips, and 3 units squares under the 5 units squares. Say, "We always start by adding from right to left. How much are 5 units squares plus 3 units squares?" Ask a student to come to the chalkboard and tape up the correct number of units squares. Say, "Next we will add the tens strips. How much are 4 tens strips plus 2 tens strips?" Ask a student to come to the chalkboard and tape up the correct number of tens strips. Say, "Last we add the hundreds squares. How much are three hundreds squares plus zero hundreds squares?" Ask a student to tape up the correct number of hundreds squares. Say, "How would we write 3 hundreds squares, 4 tens strips and 5 units squares as a number?" Write 345. Write the plus sign under and to the left of the 345. Say, "How would we write 2 tens strips and 3 units squares as a numeral?" (23) Ask a student to come to the chalkboard and write the numeral 23 under the 345. Draw a line under the 23. Say, "How would we write 3 hundreds squares, 6 tens strips and 8 units squares as a numeral?" (368) Ask a student to come to the chalkboard and write 368. Ask a student to read the entire example. Repeat this procedure, using other numbers.

Write the following example on the chalkboard:

```
  425
+ 51
```

GETTING STARTED cont'd

Say, "When we add, we begin at the far right in the units place. What numbers are in the units place?" Elicit from the students 5 and 1. Say, "How much is 5 plus 1?" Ask a student to come to the chalkboard and write the number 6 under the 1 in the units place. Say, "Next we add the numbers in the tens column. What numbers are in the tens column?" (2 and 5) Say, "How much is 2 plus 5?" Ask a student to come to the chalkboard and write the number 7 under the 5 in the tens column. Say, "What numbers are in the hundreds column?" (4 and 0) Say, "How much is 4 plus 0?" Ask a student to come to the chalkboard and write the number 4 in the hundreds column. Ask a student to read the addition example to the class.

Repeat this procedure, using other examples.

2.02.02

2.02.02.01 **add 2 digit numbers without regrouping (exchanging) and check**

STRATEGY 1: Draw a place value chart on the chalkboard, e.g., H|T|O. Prepare eighteen blue, eighteen yellow, and eighteen red circles for demonstration. Prepare counting objects and place value charts for each student. Tape five blue circles, two yellow circles, and six red circles on the chalkboard. Ask the students to place five chips in the hundreds place, two chips in the tens and six chips in the ones place in their charts. Draw a plus sign below and to the left of the five blue circles. Tape three blue circles, one yellow circle, and two red circles next to the plus sign. Ask the students to place three chips in the ones place. Draw a bar and say, "First we are going to add the red circles in the ones place. How much are 6 ones plus 2 ones?" (8) Ask a student to come to the chalkboard and tape eight circles on the chalkboard under the two red circles. Ask the seated students to add the chips at their desks. Say, "Next we are going to add the yellow circles in the tens place. How much are two yellow circles plus one yellow circle?" (3) Ask a student to come to the chalkboard and tape three yellow circles under the one yellow circle. Ask the students to add the hundreds at their desks. Say, "We will add the blue circles in the hundreds column. How much are five blue circles plus three blue circles?" (8) Ask a student to come to the chalkboard and tape eight blue circles under the three blue circles. Say, "How would we write five blue circles, two yellow circles and six red circles as a number. (526) Ask a student to write 526 on the

STRATEGY 1: cont'd chalkboard. Write the plus sign under and to the left of the 526. Say, "How would we write three blue circles, one yellow circle and two red circles as a number?" (312) Ask a student to write 312 on the chalkboard. Say, "How would we write eight blue circles, three yellow circles and eight red circles as a number?" (838) Ask a student to write 838 on the chalkboard. Ask a student to read the addition example. Say, "We can check this example by writing 312 and adding 526 to it. Our sum is 838 so we know we are correct.

STRATEGY 2: Write the following example on the chalkboard:

$$\begin{array}{r} 725 \\ +153 \\ \hline \end{array}.$$

Say, "When we add, we begin in the ones column. What numbers are in the ones column?" (5 and 3) Say, "How much is 5 plus 3?" (8) Write the 8 in the ones column. Say, "Next we add the tens column. What numbers are in the tens column?" (2 and 5) "How much is 2 plus 5?" (7) Write the 7 in the tens column. Say, "Last, we add the hundreds column. What numbers are in the hundreds column?" (7 and 1) How much is 7 plus 1? Write the 8 in the hundreds column. Ask a student to read the example to the class. Say, "We can check our example by adding 725 to 153." Write 153 on the chalkboard.

$$\begin{array}{r} \\ \\ +725 \\ \hline \end{array}$$

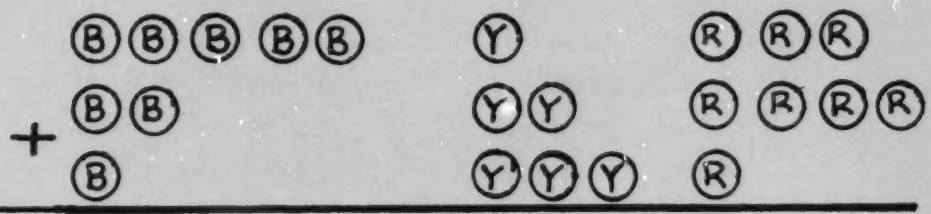
Select a student to add. Say, "Our answer is correct.

2.02.02.02 add three or more 3-digit numbers without regrouping (exchanging) and check

STRATEGY 1: Draw a place value chart on the chalkboard, e.g., H | T | O. Prepare counting objects and individual

STRATEGY 1: cont'd

place value charts for each student. Prepare eighteen blue, eighteen yellow and eighteen red circles. Tape five blue circles, one yellow circle and three red circles on the chalkboard in the place value chart. Ask students to place their chips in the same order at their seats. Tape two blue circles, two yellow circles and four red circles under the first group of circles. Ask students to do the same thing at their desks. Write a plus sign under and to the left of the two blue circles. Tape one blue circle, three yellow circles and one red circle under the above circles. Ask the students to do the same at their desks. Draw a bar under all of the circles.



Say, "First we are going to add the red circles which are in the ones place. How much are three red circles, plus four red circles, plus one red circle?" (8) Ask a student to come to the chalkboard and tape eight red circles on the chalkboard. Ask the students to add their counters in the ones column. Say, "Next we are going to add the yellow circles which are in the tens place.

How much is one yellow circle plus two yellow circles, plus three yellow circles? (6) Ask the students to add the counters in their tens column. Ask a student to come to the chalkboard and tape six yellow circles on the chalkboard. Say, "Last, we will add the blue circles which are in the hundreds place. How much are five blue circles plus two blue circles, plus one blue circle?" (8)

STRATEGY 1: cont'd

Ask the students to add the chips in the hundreds column. Ask a student to come to the chalkboard and tape eight blue circles in the hundreds place. Say, "How would we write five blue circles, one yellow circle and three red circles as a number?" (513) Write 513 on the chalkboard. Say, "How would you write two blue circles, two yellow circles, and four red circles as a number?" (224) Ask a student to write 224 on the chalkboard. Write the plus sign below and to the left of 224. Say, "How would you write the one blue circle, three yellow circles and one red circle as a number?" (131) Write 131 on the chalkboard. Write the bar under the 131. Say, "How would you write eight blue circles, six yellow circles and eight red circles as a number?" (868) Write 868 on the chalkboard under the bar. Ask a student to read the entire addition example to the class. Repeat this procedure using other examples. To check we rewrite the order of the numbers and add again.

e.g.,

```
  131
  224
 +513
```

Since both sums are 868, we know we are correct.

STRATEGY 2: Write the following example on the chalkboard.

e.g.,

```
  215
  342
 +431
```

Say, "When we add, we begin in the ones column. What numbers are in the ones column? How much is 5 plus 2 plus 1?" (8) Write the 8 in the ones column. Say, "Next we add the tens column?" (1, 4, and 3) "How much is 1 plus 4, plus 3?" (8)

STRATEGY 2: cont'd

Write the 8 in the tens column. Say, "Last we add the hundreds column. What numbers are in the hundreds column?" (2, 3, and 4) "How much is 2 plus 3 plus 4?" (9) Write the 9 in the hundreds column. Ask a student to read the addition example to the class. Say, "To check we add again." Write

```
 431
 342
+215
```

on the chalkboard. Select a student to add.

Say, "Since the sums of both examples are the same we know we are correct."

2.02.02.03 compute addition examples using numbers through $9.99 and check

STRATEGY 1: Prepare a doll, jump rope, notebook, ring, key chain, and school shirt. Make a price tag out of oaktag for each item and attach the tag to each item, e.g., jump rope $2.14, doll $1.43, notebook $4.25, ring $5.34, key chain $3.42, school shirt $3.31. Set up two desks in the front of the room. Label one desk number one and one desk number two. Put the doll, jump rope and ring on desk number one, and the notebook, key chain, and school shirt on desk number two. Say, "Today we are going shopping in our school store. There is only one rule. When you go shopping, you must buy one thing from desk one and one thing from desk two." Ask a student to come to the front of the room and select two items, e.g., jump rope and key chain. Ask the student to read the prices of each item and write the price on the chalkboard. Say, "How could we find out how much the two items cost together?" (adding) Write the example on the chalkboard.

STRATEGY 1: cont'd

e.g.,

$2.14 jump rope
+3.42 key chain

Say, "When we add we begin with the ones column. What numbers are in the ones column?" (4 and 2) "How much is 4 plus 2?" (6) Write the 6 in the ones column. Say, "Now we add the tens. What numbers are in the tens column?" (1 and 4) "How much is 1 plus 4?" (5) Write 5 in the tens column. Say, "Now we bring down the decimal point and add the hundreds. What numbers are in the hundreds column?" (2 and 3) "How much is 2 plus 3?" (5) Write the 5 in the hundreds column. Say, "Last we write the dollar sign." Ask a student to read the example. Say, "Let's see if our example is correct. We can check by adding the price of the key chain $3.42 to the jump rope $2.14." Ask a student to write the example on the chalkboard and perform the addition. Say, "What is the sum?" ($5.56) "Is that the same sum as our first example?" (Yes) "We have just proved that when we add the order in which we add the addends does not change the sum." Repeat this procedure with other examples. Stress that adding money is just like adding other numbers.

STRATEGY 2: Put the following example on the chalkboard:

$4.32
+5.61.

Say, "When we add dollars and cents, we begin in the ones place. What numbers are in the ones place? (2 and 1) "How much is 2 plus 1?" (3) Write 3 in the ones column. Say, "Next we add the tens. What numbers are in the tens?" (3 and 6) "How much is 3 plus 6?" (9) Write 9 in the tens column. Write the decimal point. Say, "Last we

STRATEGY 2: cont'd

add the hundreds. What numbers are in the hundreds place?" (4 and 5) "How much is 4 plus 5?" (9) Write 9 in the hundreds column. Write the dollar sign. Ask a student to read the addition example and check. Repeat this procedure with other examples.

2.02.02.04 solve story problems related to skills learned in this module

STRATEGY 1: Prepare a supermarket advertisement with the following items:

Chicken	$1.15
Hamburger	$2.23
Milk ($\frac{1}{2}$ gallon)	$1.02
Potatoes	$1.24
Ice Cream	$2.03
Frozen Vegetables	$1.34

Say, "Mrs. Jones is going to the supermarket to buy chicken and potatoes. How much will she spend for both items?" Ask the students for the price of each item and write each price on the chalkboard. Say, "Do you think she will spend more or less than $1.15 for both items?" Elicit "more" from the students. Put a number line on the chalkboard marked from $1.00 to $2.00 in intervals of ten cents, e.g., $1.00, $1.10, $1.20,.... Say, "Is $1.15 closer to $1.00 or $2.00?" ($1.00) "Is $1.24 closer to $1.00 or $2.00?" ($1.00) "About how much do you think we will have to spend?" ($2.00) "Let's add the price of the chicken and the potatoes. When we begin, we add in the ones place. What digits are in the ones place?" (5 and 4) "How much

STRATEGY 1: cont'd

is 5 plus 4?" (9) Write 9 on the chalkboard. Say, "Next we add the tens. What digits are in the tens place?" (1 and 2) "How much is 1 plus 2?" (3) Write 3 on the chalkboard. Write the decimal point. Say, "Last we add the hundreds. What digits are in the hundreds place?" (1 and 1) "How much is 1 plus 1?" (2) Write the 2 in the hundreds column.

e.g., $1.15
+ 1.24

Ask a student to check the example.

e.g., $1.24
+ 1.15
$2.39

Say, "We said we would spend about $2.00. Were we close?" (Yes) "We said we would spend more than $1.15. Were we right?" (Yes) Repeat this procedure, using other examples from the list.

STRATEGY 2: Write the following example on the chalkboard: Mrs. Smith drove 543 miles in one day and 316 miles the next day. How many miles did she drive in all? Say, "Do you think that she will drive more or less than 543 miles in two days?" Elicit "more" from the students. Draw two number lines on the chalkboard, one numbered from 500 through 600 in multiples of ten, the second one numbered 300 through 400 in multiples of ten. Say, "Is 543 closer to 500 or 600?" Elicit from the students that it is closer to 500. Say, "Is 316 closer to 300 or 400?" Elicit "300" from the students. Say, "To find out about how much she drove, we will add 500 and 300. How much is 500 plus 300?" Elicit "800" from the students. Write 500 on the chalkboard.

+300
800

STRATEGY 2: Say, "Let's find out exactly how much Mrs. Smith drove. We will add 543 plus 316." Write 543 on the chalkboard. Say, "We begin by adding in the ones column. How much is 3 plus 6?" (9) Write 9 on the chalkboard. Say, "Next we add the tens column. How much is 4 plus 1?" Elicit "5" from the students, and write 5 on the chalkboard. Say, "Last we add the hundreds column. How much is 5 plus 3?" Elicit "8" from the students and write 8 on the chalkboard.

e.g.,
$$\begin{array}{r} 543 \\ +316 \\ \hline 859 \end{array}$$

Say, "What label will we assign to the answer?" Elicit "miles" from the students. Select a student to check the example. Ask a student to read the example to the class. Say, "We said Mrs. Smith would drive more than 543 miles. Were we correct?" (Yes) "We said Mrs. Smith would drive about 800 miles. Were we close?" (Yes)

Repeat this procedure with other examples.

P.O. 2.02.02.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Solve the examples.

ACROSS

1. $213 + 475$

2. $543 + 251$

4. $167 + 431$

5. $424 + 572$

6. $515 + 173$

DOWN

1. $324 + 313$

3. $136 + 362$

4. $235 + 311$

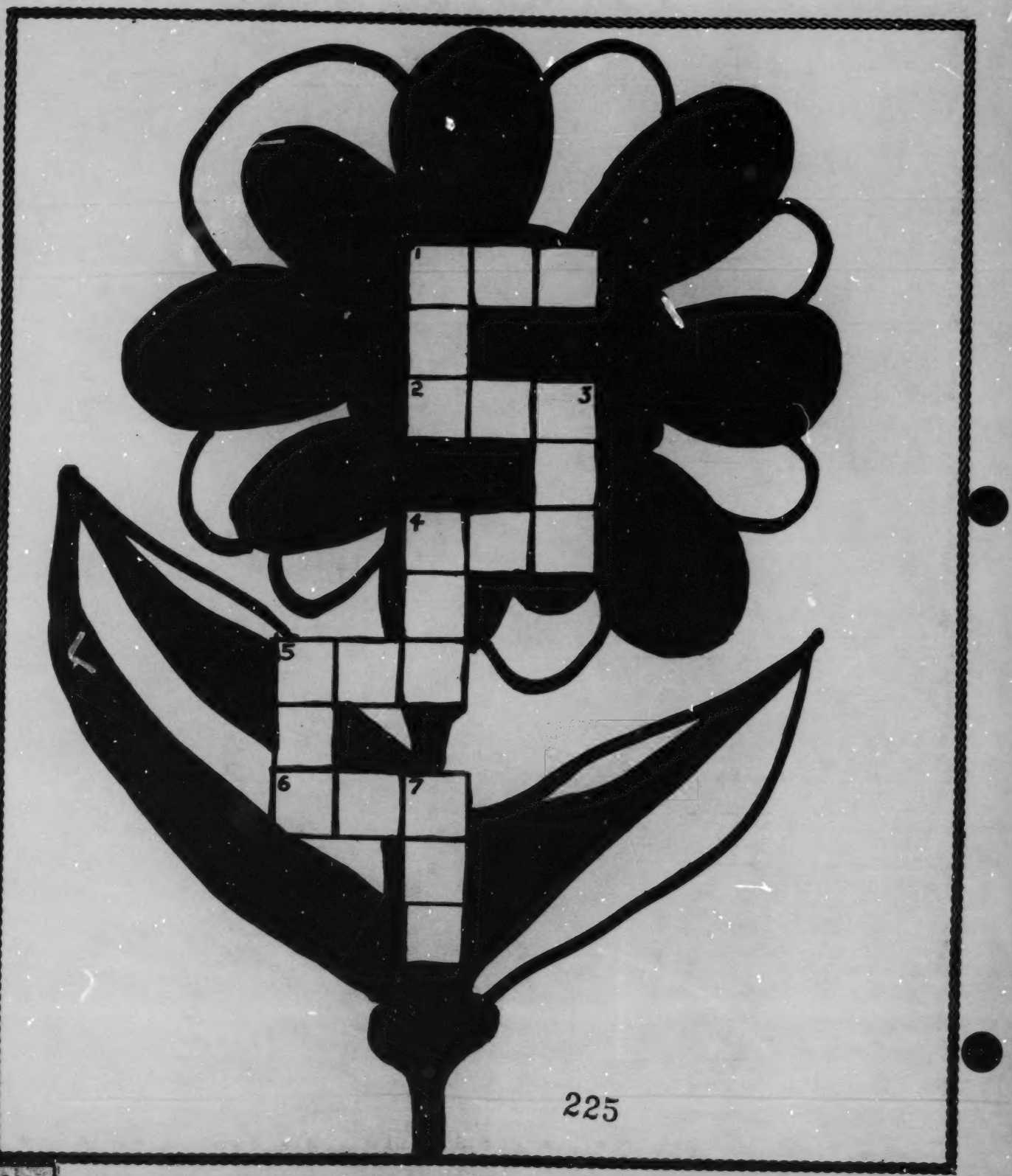
5. $632 + 364$

7. $627 + 252$

P.O. 2.02.02.01

NAME:_____ CLASS:_____ DATE:_____

Directions: Write the answers in the puzzle.



225

P.O. ~~2.02.02.02~~

NAME: _____ CLASS: _____ DATE: _____

Directions: Solve. Use the code and find a secret message.

A=777 C=676 F=886 M=588
B=938 E=987 H=999 N=959
T=396 U=799

[M]	[ ]	[ ]	[ ]
241	432	164	405
132	114	131	324
+214	+231	+101	+270
588			

[ ]	[ ]	[ ]	[ ]	[ ]
251	414	724	211	316
104	232	113	412	421
+321	+131	+122	+315	+250

[ ]	[ ]	[ ]
213	108	524
342	230	124
+331	+461	+311

P.O. 2.02.02.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Use the menu to find the price of each item. Write the prices for each item next to each item and then add.

1. Hamburger $1.25
Milkshake + 1.20
Total $2.45

2. Tunafish Sandwich $.
Ice Cream Soda + .

3. Turkey Sandwich $.
Orange Slush + .
Total $.

4. Cheeseburger $.
Milkshake + .
Total $.

5. Tunafish Sandwich $.
Ice Cream Soda + .

6. Roast Beef Sandwich $.
Orange Slush + .
Total $.

227

P.O. 2.02.02.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Solve the problem.

1. Mrs. Jones sold 431 flowers in March and 560 in April. How many flowers were sold altogether?

$$\begin{array}{r} 431 \\ +560 \\ \hline \end{array}$$

2. Craig bought a game for $5.20 and a puzzle for $1.35. How much did he spend in all?

3. Mr. Jones drove 341 miles one day and 425 miles the next day. How many miles did he drive in the two days?

4. A doll costs $4.25 and a baseball glove costs $4.50. How much do they cost together?

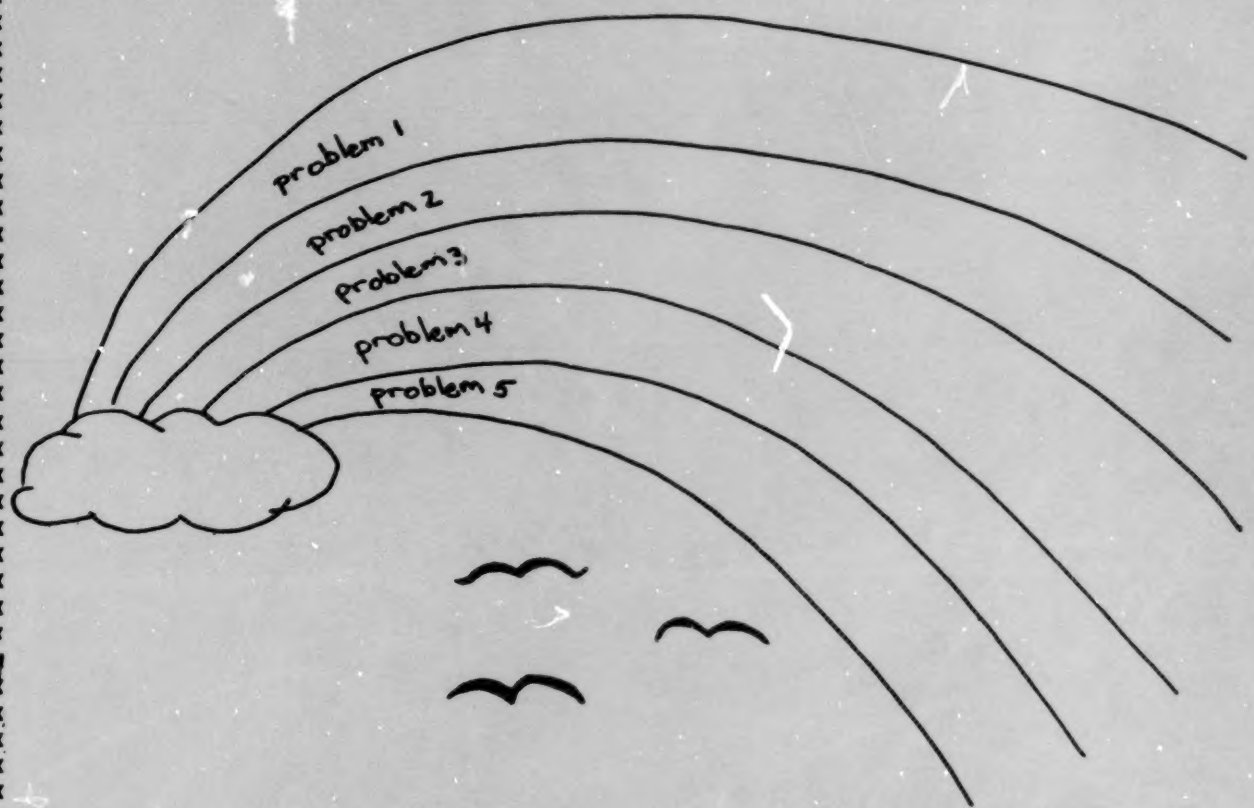
5. There are 737 dogs and 121 cats at the pet store. How many animals are in the pet store altogether?

228

P.O. 2.02.02.04

NAME:_____ CLASS:_____ DATE:_____

Directions: Match each answer to a color. Color the rainbow.



$8.75 = Yellow

$6.55 = Green

991 = Blue

766 = Orange

858 = Red

229

2.02.03 ADDITION OF 2- AND 3-DIGIT NUMBERS USING EXPANDED NOTATION WITHOUT REGROUPING

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.02.03.01A add 2-digit numbers using expanded notation;
e.g.,

$$\begin{array}{r} 22 = 20 + 2 \\ +\ 13 = \underline{10 + 3} \\ 30 + 3 = 33 \end{array}$$

2.02.03.02A add 3-digit numbers using expanded notation;
e.g.,

$$\begin{array}{r} 123 = 100 + 20 + 3 \\ +\ 415 = \underline{400 + 10 + 5} \\ 500 + 30 + 8 = 538 \end{array}$$

2.02.03.03A add a 2-digit number and a 3-digit number using expanded notation.
e.g.,

$$\begin{array}{rcr} 23 & = & 20 + 3 \\ \underline{+415} & = & \underline{400 + 10 + 5} \\ & & 400 + 30 + 8 = 438 \end{array}$$

GETTING STARTED

Prepare 9 hundreds cards, 9 tens strips and 9 units squares. Hold up a hundreds card and say, "This card is a hundreds card." Hold up a tens strip and say, "This strip is a tens strip." Hold up a units square and say, "This square is a units square." Tape 2 hundreds cards, 3 tens strips and 5 units squares to the chalkboard. Say, "How would we write the picture shown on the chalkboard as a number?" Elicit "235" from the students. Write 235 on the chalkboard. Say, "How would we write the number 200.?" Elicit two, zero, zero from the students. Write 235 = 200+ on the chalkboard. Say, "How would you write the number 30?" Elicit three zero from the students. Write 30 after the plus sign, e.g., 200 + 30. Write a plus sign after the 30 and say, "How would you write the number 5?" Elicit "5" from the students. Write 5 after the plus sign. Ask a student to read the example to the class, e.g., 235 = 200 + 30 + 5.

Repeat this procedure, using other examples.

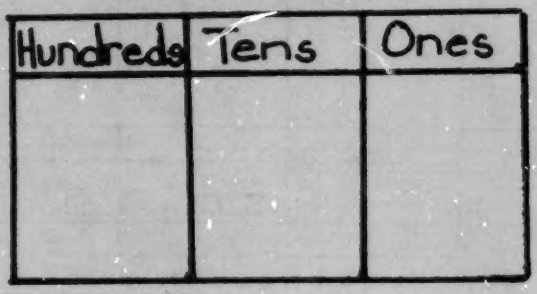
Write the number 461 on the chalkboard. Say, "How many hundreds do we have in this number?" Elicit "four" from the students. Ask a student to come to the chalkboard and write 400. Say, "How many tens do we have?" Elicit "six" from the students. Ask a student to come to the chalkboard and write 6 tens, e.g., 60. Say, "How many units do we have?" Elicit "one" from the students. Ask a student to write 1 on the chalkboard. Write 461 = 400 + 60 + 1 on the chalkboard. Ask a student to read the example. Repeat this procedure, using other examples.

2.02.03

2.02.03.01 **add 2-digit numbers using expanded notation**

STRATEGY 1: you will need place value chart mats and squared materials of tens and ones.

e.g.,



Helpful hints:

#1: At this grade level it is very helpful to make place value charts on heavy oaktag and cover them with clear contact. These mats can then be used for place value, addition, and subtraction all year long.

#2: It is also helpful to ask each student to bring in a shoe box to keep squared materials.

Distribute the place value mats and squared materials to each student. Direct the student to separate their tens and ones on their desks. Then propose a problem, e.g., "Tommy had 23 baseball cards; his father bought him 43 more. How many cards does Tommy have now?" Elicit from the students that this is an addition problem and that we have to add 23 plus 43. Say, "Show us how 23 looks using your tens and ones." (Students should show 2 tens and 3 ones on their place value mats.) Ask, "How much is 2 tens?" (20) "How much is 3 ones" (3) Write 23=20+3 on the chalkboard. Say, "Show how 43 looks using your tens and ones." (The students should show 4 tens and 3 ones underneath the 2 tens and 3 ones on their place value mats.)

STRATEGY 1: cont'd

Write 43=40+3 on the chalkboard.

Hundreds	Tens	Ones
	□ □ □ □ □ □	□ □ □ □ □ □
	□□□□□□	□□□□□□

chalkboard

23 = 20 + 3

+43 = 40 + 3

Say, "First we add the numbers in the ones column on our mats. We have 3 ones and 3 ones. How much is that? " (6) "Then we add our tens column. We have 2 tens plus 4 tens. How many tens is that?" (6 tens) Say, "6 tens and 3 ones is equal to what number?" (63) Direct the students to the problem on the chalkboard and have them add the problem again, first the ones and then the tens.

$$\begin{array}{r} 23 = 20 + 3 \\ \underline{43 = 40} + 3 \\ 60 + 6 = 66 \end{array}$$

Tommy now has 66 baseball cards.

Repeat this procedure with a similar problem.

2.02.03.02 add two 3-digit numbers using expanded notation

STRATEGY 1: You will need place value mats and squared material for each student in the class. (The place value mats were described in 2.02.03.01.)

Say, "Tom and Harry were selling newspapers. Monday they sold 315 and Tuesday they sold 234. How many newspapers did they sell on both days?" Elicit from the students that this is an addition problem. Then say, "I want all of you to show what 315 looks like with your hundreds, tens, and ones." (They should show 3 hundreds, 1 ten and 5 ones on their charts.) Ask, "What do we see in the hundreds column, the tens, the ones?" Write answers on the chalkboard.

$$\begin{aligned} 315 &= 300 + 10 + 5 \\ 234 &= \underline{200 + 30 + 4} \\ & \quad 500 + 40 + 9 = 549 \end{aligned}$$

Repeat this procedure with the squared materials for 234 and write the expanded number on the chalkboard. Say, "Now add the ones, then the tens, and then the hundreds." Reread the problem and ask a student to tell how many newspapers both boys sold. Repeat this procedure with similar problems.

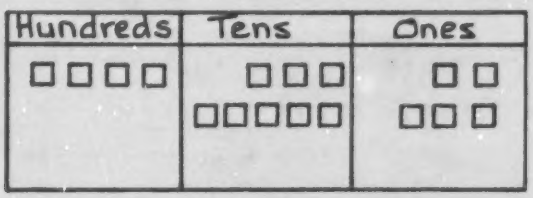
2.02.03.03 add a 2-digit and a 3-digit number using expanded notation

STRATEGY 1: Materials: A place value mat for each student and squared materials.

Put the following problem on the chalkboard:

$$\begin{array}{r} 432 \\ \underline{+53} \end{array}$$

Say, "Show how to expand 432 on your place value chart." (They should show 4 hundreds, 3 tens, 2 ones) "Now show 53 on your charts." (5 tens, 3 ones)



Check that the students have placed the numbers in the proper columns. Write the following example on the chalkboard.

$$\begin{array}{rl} 432 = & 400 + 30 + 2 \\ +\ 53 = & \underline{\quad\quad + 50 + 3} \\ & 400 + 80 + 5 = 485 \end{array}$$

Add ones, tens, and hundreds.

Repeat this procedure with a similiar problem.

P.O. 2.02.03.01

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill in the △, ○, and the □. Add and check.

① Check

$23 = 20 + 3$

$+\ 41 = 40 + 1$

$60 + 4 = 64$

$41 = 40 + 1$

$+\ 23 = 20 + 3$

$60 + 4 \quad 64$

② Check

$21 = ○ + △$

$+\ 37 = ○ + △$

$○ + △ = □$

③ Check

$34 = ○ + △$

$+\ 53 = ○ + △$

$○ + △ = □$

④ Check

$45 = ○ + △$

$+\ 12 = ○ + △$

$○ + △ = □$

P.O. 2.02.03.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill in the boxes. Add in expanded notation and check.

① $264 = \boxed{200} + \boxed{60} + \boxed{4}$

$+232 = \boxed{200} + \boxed{30} + \boxed{2}$

$\boxed{400} + \boxed{90} + \boxed{6} = 496$

CHECK

$232 = \boxed{} + \boxed{} + \boxed{}$

$+264 = \boxed{} + \boxed{} + \boxed{}$

$\boxed{} + \boxed{} + \boxed{} =$

② $603 = \boxed{} + \boxed{} + \boxed{}$

$+341 = \boxed{} + \boxed{} + \boxed{}$

$\boxed{} + \boxed{} + \boxed{} =$ ____

CHECK

③ $552 = \boxed{} + \boxed{} + \boxed{}$

$+140 = \boxed{} + \boxed{} + \boxed{}$

$\boxed{} + \boxed{} + \boxed{} =$ ____

CHECK

P.O. 2.02.03.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Fill in the blanks, add and check.

$142 = 100 + 40 + 2$

$+\ 44 = \quad 40 + 4$

$100 \quad 80 \quad 6 = 186$

Check

$44 = \quad 40 + 4$

$+142 = 100 + 40 + 2$

$100 + 80 \quad 6 = 186$

636

+ 43

$\square + \square + \square$

$\quad \square + \square$

$\square + \square + \square = \square$

Check

545

+ 32

$\square + \square + \square$

$\quad \square + \square$

$\square + \square + \square = \square$

Check

672

+ 17

$\square + \square + \square$

$\quad \square + \square$

$\square + \square + \square = \square$

Check

743

+ 52

$\square + \square + \square$

$\quad \square + \square$

$\square + \square + \square = \square$

239

P.O. 2.02.03.03

NAME: _____ CLASS: _____ DATE: _____

Directions: Expand and add.

$\begin{array}{r} 22 \\ +434 \end{array}$	$\begin{array}{r} 20+2 \\ 400+30+4 \end{array}$
$\begin{array}{r} 53 \\ +546 \end{array}$	
$\begin{array}{r} 35 \\ +251 \end{array}$	
$\begin{array}{r} 68 \\ +521 \end{array}$	
$\begin{array}{r} 47 \\ +532 \end{array}$	
$\begin{array}{r} 93 \\ +406 \end{array}$	
$\begin{array}{r} 34 \\ +265 \end{array}$	

2.13.02 LOCATE INFORMATION

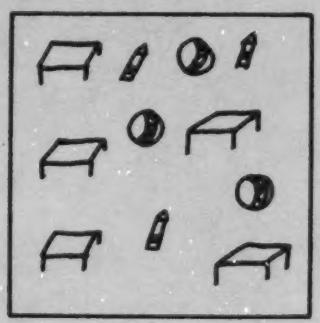
(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.13.02.01A locate information in a picture in order to solve simple problems;

e.g.,



How many desks are there?

2.13.02.02A locate information on a table or chart in order to solve simple problems;

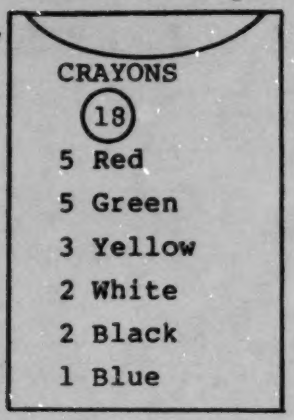
e.g.,

potato chips	25¢
pretzel	20¢
ice cream	30¢

How much do potato chips and ice cream cost together?

2.13.02.03A locate information in the environment in order to solve simple problems.

e.g.,



Which colors have the same numbers of crayons?

GETTING STARTED

Call five boys and three girls to the front of the room. Ask, "How many students are in front of the room?" (8) "How many more boys are there than girls?" (2) "If two girls sit down, how many students would be left?" (6) "If four more boys come to the front of the room, how many boys would there be?" (9)

Repeat this procedure with a new set of students.

Draw five circles, three triangles, four squares and three rectangles on the chalkboard. Ask, "How many circles do you see?" (5) "How many triangles?" (3) "How many more circles than triangles?" (2) How many circles and squares together?" (9) "Which two figures are equal in number?" (triangles and rectangles) "How many more triangles do I need to equal the number of squares?" (one)

2.13.02

2.13.02.01 **locate information in a picture in order to solve simple problems**

STRATEGY 1: Prepare a worksheet with a picture of six apples, five bananas, four oranges, three pears, and four cherries. Give each student a copy of the worksheet. Ask students to locate the following information from the picture.

How many apples are there? Pears? Bananas ...?
How many more apples are there than oranges? Pears? Bananas ...?
How many more bananas than pears?
How many apples and bananas are there all together?
Which fruits are equal in number?
How many more pears are needed to equal oranges?
How many fruits are there all together?

STRATEGY 2: Give each student an envelope containing colored circles (pre-pasted). In each envelope, have five red, three yellow, four green, six blue, two orange. Have the students paste the circles on drawing paper. Ask, "How many more red circles are there than yellow circles? How many red and yellow circles all together? How many more blue circles than orange circles? How many circles all together? Which color has the most circles? Fewest? If two reds were taken away, how many would be left? If you added two more yellow, how many would you have?" Have the students stand up and ask similar questions.

2.13.02

2.13.02.02 locate information on a table or chart in order to solve simple problems

STRATEGY 1: Prepare a price list worksheet for each student. e.g.,

School Store

apple	- 20¢	pencils	- 10¢
granola bar	- 35¢	erasers	- 5¢
notebooks	- 50¢	paste	- 40¢

Ask, "How much does an apple and a granola bar cost together? How much will two pencils cost? How many erasers can John buy for a quarter? John bought two pencils and one notebook. How much did he spend? How much change will May get from a quarter if she buys two pencils? Ask the students to make up a question from the chart.

STRATEGY 2: Give each student the School Store price list worksheet and an envelope containing the following coins: three quarters, five nickels, ten dimes, five pennies. The students can be divided into groups to answer the following questions.

1. How many different items can you buy with 50¢? (five pencils) (paste and one pencil) ...
2. You have 25¢. How much more do you need to buy paste? (15¢)
3. How much does an apple and a granola bar cost together? (55¢)
4. How much do five pencils cost? (50¢)
5. How much do two erasers and one pencil cost? (20¢)
6. How much change do you get if you buy a granola bar and give the storekeeper two quarters? (15¢)
7. Which costs more, an apple and a granola bar or a notebook? (an apple and a granola bar)

STRATEGY 2: cont'd

8. Which costs more, two pencils and one eraser or an apple?
9. You have 25¢. How many erasers can you buy? (5)
10. You have a quarter and five pennies. Can you buy a granola bar? (no)

2.13.02.03 locate information in the environment in order to solve simple problems

STRATEGY 1: Direct the class's attention to a bulletin board in the classroom with math or spelling tests. Say, "I want to know how many students got 100 or 90 on last Friday's spelling test." Draw a chart on the chalkboard. Ask a student to count the scores so you can fill in the information. (You might wish to have a student fill in the chart.)

e.g.,

Score	Number
100	8
90	6
80	7

Say, "Looking at this chart, we can see that eight students received 100 on the test. How many received 90?" (6) "How many more received 100 than 90?" (2)

You can make similar situations for the class to work out, e.g., number of boys, girls, ...

STRATEGY 2: Divide the class into groups of three students each. Make a crayon box for each group. Each crayon box should contain the following.

STRATEGY 2:
cont'd

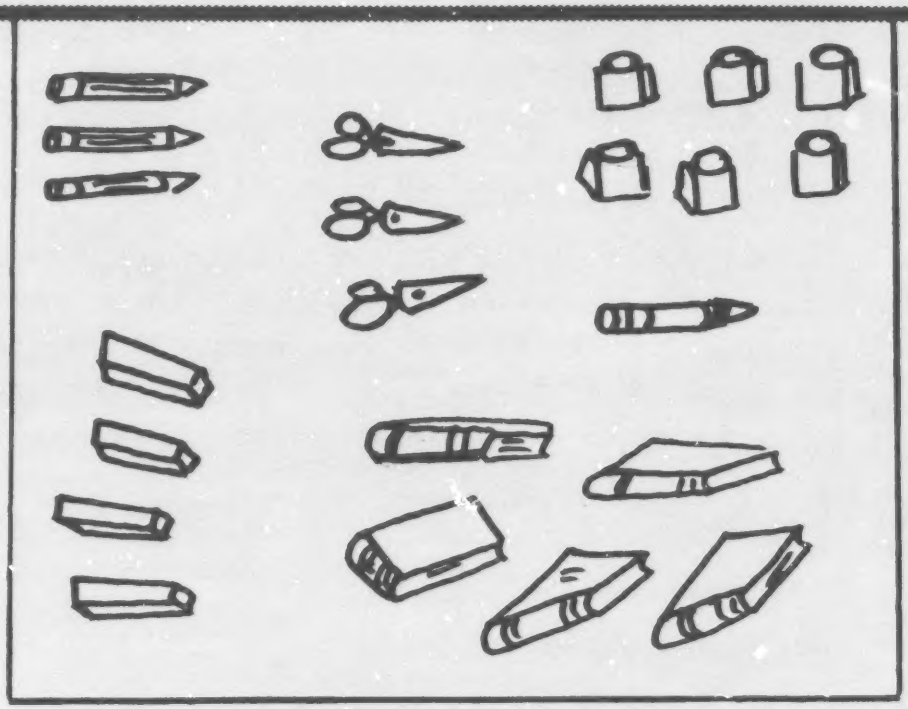
Crayons
5 red
5 green
3 yellow
2 white
1 black
2 blue

Ask the groups to take the crayons out of their boxes and separate and count each color. Ask, "Which colors have the same number of crayons? Which color has the fewest crayons? How many more red crayons are there than black? Blue?

P.O. 2.13.02.01

NAME:_____CLASS:_____DATE:_____

Directions: Use the information in the picture to answer the following questions.



How many pencils?

How many books?

How many scissors?

How many more erasers than scissors?

Which two items are equal in number?

Which item is the greatest amount?

How many more inkwells than pencils?

How many books and erasers together?

How many crayons?

How many items altogether?

How many more books than crayons?

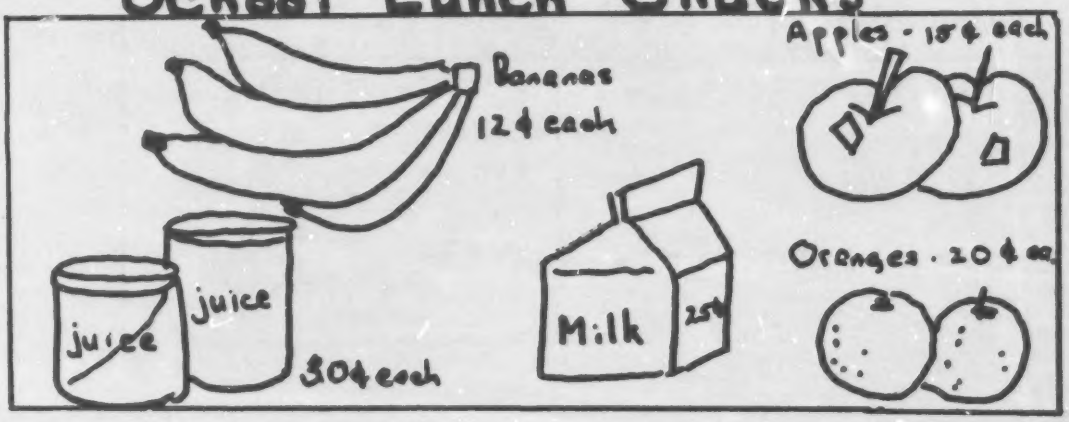
How many more scissors to equal books?

P.O. 2.13.02.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Solve the following problems. Do your work on the side.

School Lunch Snacks



Do Work Here.

What will 2 cans of juice cost?

How much does an apple and an orange cost?

How much will milk and juice cost?

Which is more? Juice or 2 oranges .

How much is juice and an apple?

I have a quarter. Can I buy 2 bananas?

I have a quarter. Can I buy 1 banana and 1 apple?

Jane bought 1 piece of fruit and one drink. She spent 50¢. What did she buy?

Ann bought juice. How much change did she get from 50¢.

How much is 2 oranges and 1 apple together?

249

P.O. 2.13.02.02

NAME: _____ CLASS: _____ DATE: _____

Directions: Use your coins to answer the following questions?

G.O. Store	
potato chips - 25¢	pencils - 10¢
pretzel - 30¢	erasers - 5¢
notebook - 50¢	paste - 40¢

How many different items can you buy with 50¢ .

You have 25¢. How much more do you need to buy paste?

How much do potato chips and a pretzel cost together?

How much do 5 pencils cost?

How much do 2 erasers and 1 pencil cost?

How much change do you get if you buy a pretzel and give the storekeeper 2 quarters?

Which costs more, potato chips and a pretzel or a notebook?

Which cost more, 2 pencils and 1 eraser or a bag of potato chips?

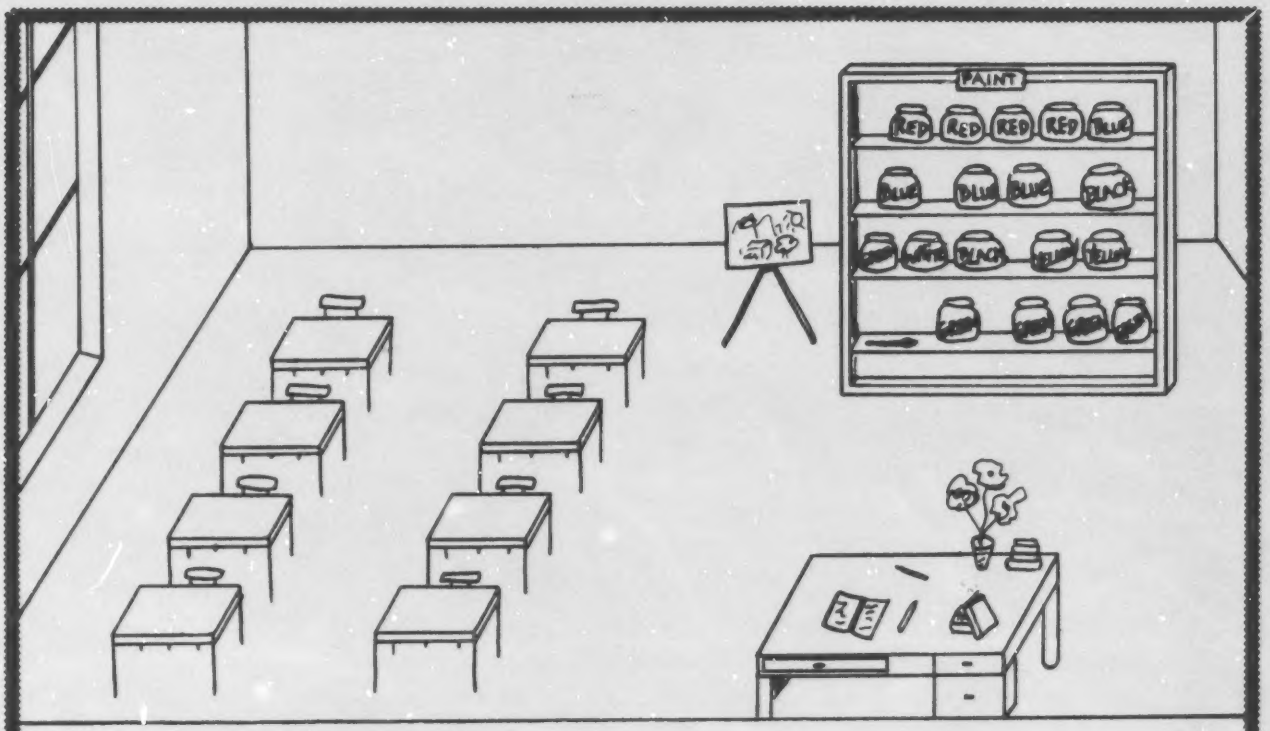
You have 25¢. How many erasers can you buy?

You have a quarter and 5 pennies. Can you buy a pretzel?

P.O. 2.13.02.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Answer the questions using the picture.



1. Which colors of paint have the same number of jars? _____

2. Which color has the fewest number of jars?

_____

3. Which color has the greatest number of jars?

_____

2.10.04 LINEAR MEASURE - INCH AND FOOT

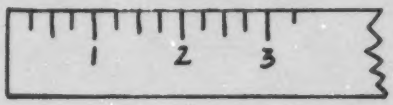
(1-2 lessons)

PERFORMANCE OBJECTIVES

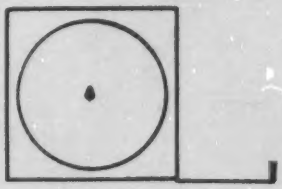
The student will be able to...

*2.10.04.01A identify various standard tools of linear measurement;

e.g.,



ruler

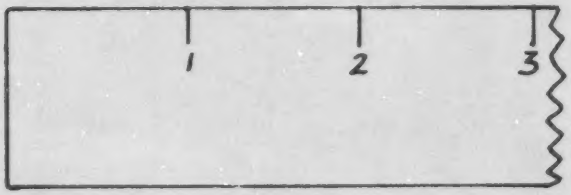


tape measure

2.10.04.02B identify an inch on a one-foot ruler;

e.g.,

Use a one-foot ruler to identify inch markings.



2.10.04.03B measure objects to the nearest foot and record, using the abbreviation (');

e.g.,

How many feet long is the teacher's desk? ____ '

2.10.04.04B measure objects less than a foot in length to the nearest inch, and record using the abbreviation (");

e.g.,

2.10.04.05B . use the 12-inch ruler to measure a line segment;

e.g.,

_____ = 3 in. long

_____ = __ in. long

2.10.04.06B identify the relationships between inch and foot.

e.g.,

12 inches = 1 foot

VOCABULARY

TERMS	**SYMBOLS**
linear measurement	' (foot)
abbreviation	" (inch)
line segment	

GETTING STARTED

Select a student to help you measure the size of your classroom. Say, "Put your back against the front wall and step-off the distance to the back wall. Make certain you take your normal step and count carefully." Ask different students to record their results on the chalkboard.

e.g.,

Susan	18 steps (paces)
Luis	15 steps
Robert	17 steps

Repeat this procedure from one side of the room to the other side.

Distribute a uniform length of string to each student and a different length of cardboard.

e.g.,

String	22"
Cardboard	$7\frac{1}{2}$"

Do not make any markings on the string or cardboard.

Ask the students to measure their desk, chalkboard, teacher's desk, shoe, ... with the string or cardboard and record their results in their notebooks.

Discuss their results in terms of string and cardboard lengths.

2.10.04

2.10.04.01 **identify various standard tools of linear measurment**

STRATEGY 1: Have the following materials available: ruler, yardstick, tape measure, three boxes labled "ruler," "yardstick," "tape measure," teacher made cards with pictures or drawings of rulers, yardsticks, and tape measures. Place the three boxes on a desk in the center of the room. Place the ruler, yardstick, and tape measure next to the appropiate boxes. Distribute two or three cards to each student. Ask a student to place a card with a picture of a ruler in the ruler box. If the student does not have such a card, he/she "passes" and another student places a picture card of a ruler (if he/she has one) in the ruler box. The next student places a "yardstick card" in the appropriate box. The next student places a "tape measure card" in the appropriate box. Continue this procedure, giving each child a turn, placing cards in the ruler, yardstick, and tape measure boxes until five students have used all of their cards. Declare those five students the winners.

STRATEGY 2: Have available the following materials: ruler, yardstick, tape measure, assorted magazines, newspapers, and scissors. Ask the students to cut and paste pictures of objects that can be measured with a ruler, yardstick or tape measure on an appropriately labeled page.

2.10.04.02 identify an inch on a one-foot ruler

STRATEGY 1: Have available a one-foot ruler marked off in inches for each student. Distribute the rulers. Ask students to place their "thumb" at the left end of the ruler (the zero mark) and their "pointer" on the number 1. Say, "How long is the space between your fingers?" Elicit that this space is one inch long.

Repeat this procedure, using two inches, three inches, four inches,.... The students will have to use fingers from both hands.

STRATEGY 2: Prepare a set of one-foot rulers marked off in inches. Distribute the rulers. Ask the students to put their finger on the longest marking on the ruler. Elicit that this is an inch marking. Assist students in identifying all the inch markings on the rulers.

2.10.04.03 measure objects to the nearest foot and record, using the abbreviation (')

STRATEGY 1: Prepare rulers, yardsticks, or cloth tape measures. Use a ruler, yardstick, or tape measure and measure the height of the chalkboard to the nearest foot. Ask a student to count the number of feet. Round off to the nearest foot (3 or 4). Write 3' or 4' on the chalkboard. Say, "This mark (') is an abbreviation for foot."

STRATEGY 1: con'd Ask your students to write "student desk," "teacher's desk," "door," "bulletin board,"... in their notebooks. Ask them to measure these objects and record the results to the nearest foot next to the words in their notebook.

STRATEGY 2: Prepare rulers, yardsticks, or cloth tape measures. Select three students of differing heights and ask them to come to the front of the room. Ask another student to measure the height of these students to the nearest foot. Record the results on the chalkboard. Repeat this procedure, using other students.

2.10.04.04 **measure objects less than a foot in length to the nearest inch and record, using abbreviation (")**

STRATEGY 1: Prepare rulers with inch markings and small familiar objects. Distribute a pencil to each student. Say, "Estimate the length of this pencil?" Distribute rulers. Write (") on the chalkboard. Say, "(") is an abbreviation for inch." Ask the students to measure a pencil to the nearest inch and record the results in their notebooks. Distribute other objects to each student and repeat this procedure.

STRATEGY 2: Distribute rulers and ask the students to measure any four items in the classroom that are less than one foot long, and to record the results in their notebooks.

2.10.04

2.10.04.05 **use the 12-inch ruler to measure a line segment**

STRATEGY 1: Have ready a 12-inch ruler for each student. Draw four line segments on the chalkboard. Ask four students to each measure a segment using a ruler. Provide a space for the student's name and measure. e.g.,

	Name	Measure
_____	_____	____
_____	_____	_____
_____	_____	_____
_____	_____	____

Ask a student to write his/her name and measure of the segment and to call on another student to do the same. Repeat this procedure so that three students measure and record each segment.

Draw four new segments and repeat this procedure.

STRATEGY 2: Ask a student to draw a line segment on the chalkboard and to call on another student to measure it. Ask that student to call on a third student to draw another line segment and have the third student call on someone else to measure it.

Repeat this procedure.

2.10.04.06 **identify the relationships between inch and foot**

STRATEGY 1: Distribute 12-inch rulers marked in inches to each student. Ask the students to measure various

STRATEGY 1: con'd

objects, e.g., chalk, eraser, ... Say, "How many inches are marked on the ruler?" (12) "12 inches is called one foot." Write 12 inches = one foot on the chalkboard.

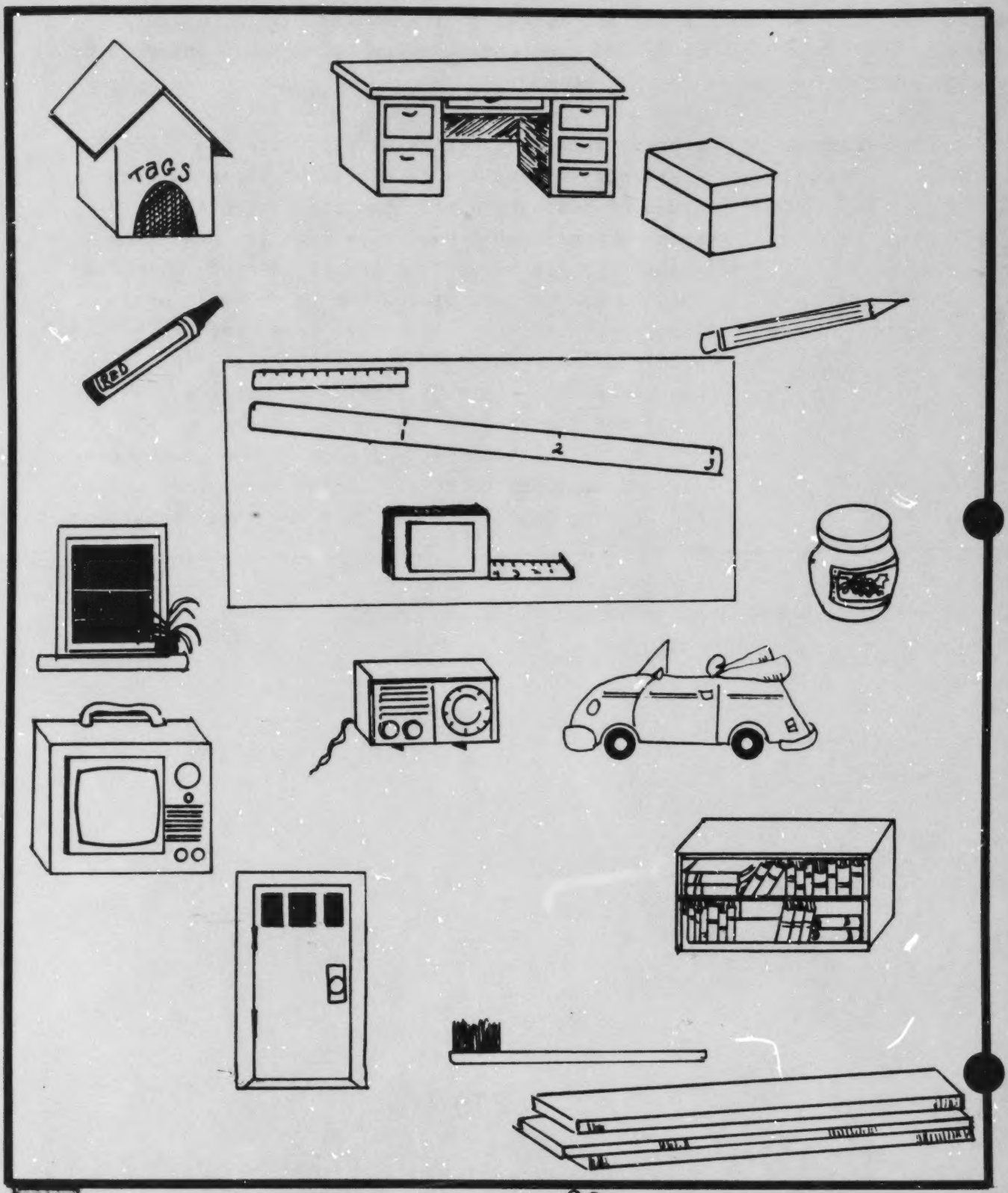
STRATEGY 2:

Prepare inch-long strips of paper for the students. Distribute rulers and 12 strips of paper to each group of four students. Ask the students to measure one strip. Say, "How long is this strip?" (one inch) "Is it as long as the ruler?" (No)" Find out how many strips placed end to end will be as long as the ruler." (12) Say, "How many strips equalled the length of the ruler?" (12) "How long was was each strip?" (1 inch) "How many inches equal one foot?" (12) "We say 12 inches equal one foot." Write 12 inches = 1 foot on the chalkboard. Ask the students to change strips with other groups and measure again to check that 12 inches equal one foot.

P.O. 2.10.04.01

NAME:_____ CLASS:_____ DATE:_____

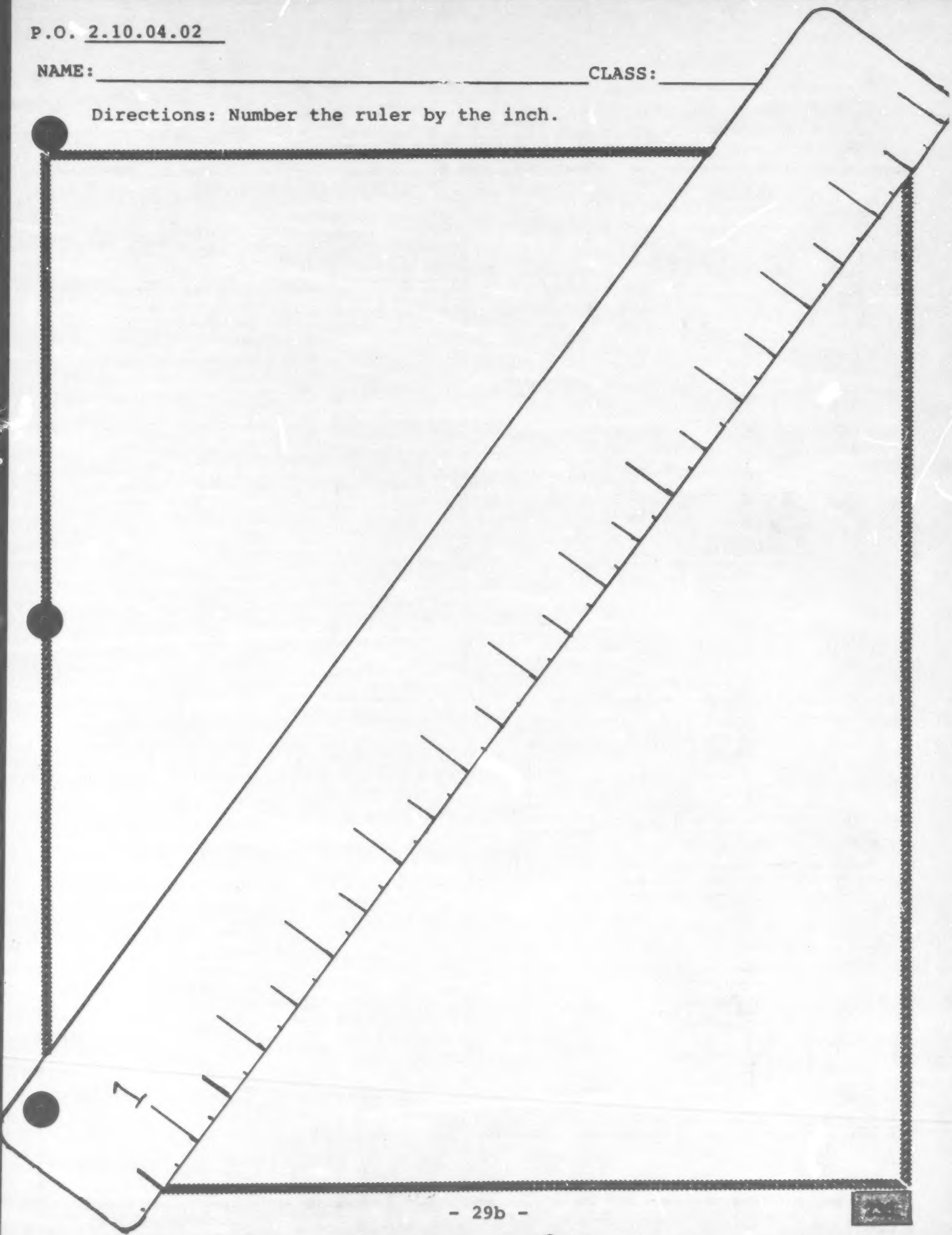
These are some real things you see each day. Draw a line from the object to the best measuring tool.



P.O. 2.10.04.02

NAME: _____ CLASS: _____

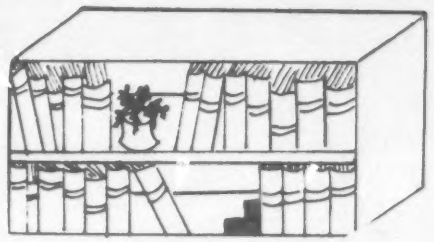
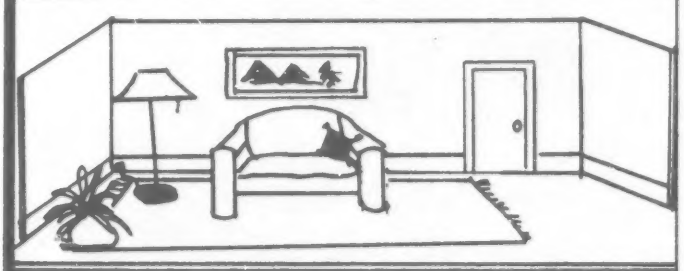
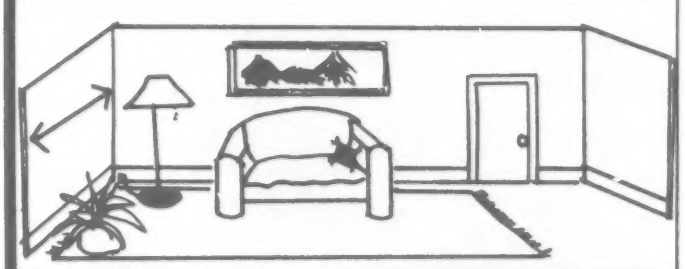
Directions: Number the ruler by the inch.



P.O. 2.10.04.03

NAME:_____ CLASS:_____ DATE:_____

Directions: Choose a partner. Write your names in the space at the top. First estimate the length and write it under your name. Then using a ruler, measure the length and write it under the "actual length".

	Estimates		Actual Length
	name	name	
 height			
←—length—→			
 length			
 width			

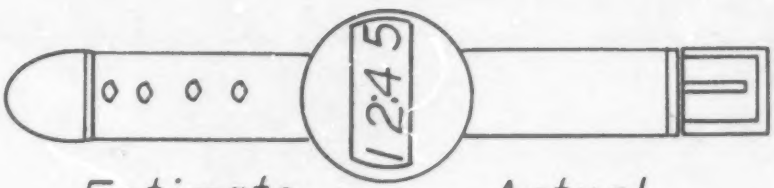
P.O. 2.10.04.04

NAME:_____ CLASS:_____ DATE:_____

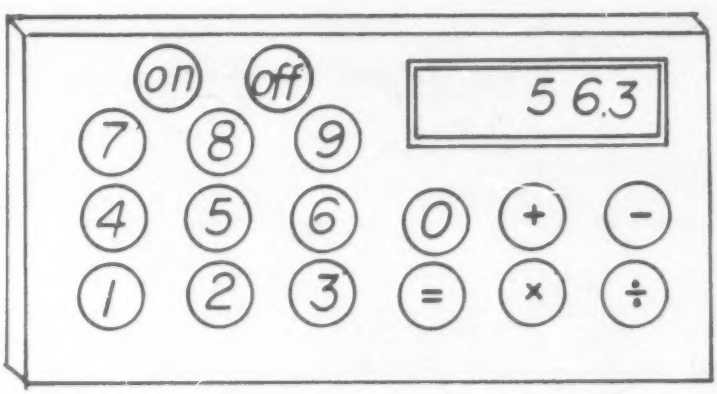
Directions: Estimate the length of each item. Cut out the ruler and measure each item. Record your results. Use (") to abbreviate inch.

Estimate _____
Actual _____

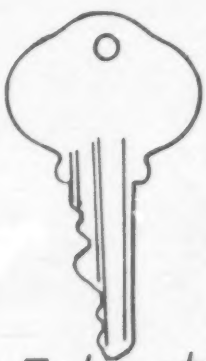
Estimate _____
Actual _____



Estimate _____ Actual _____

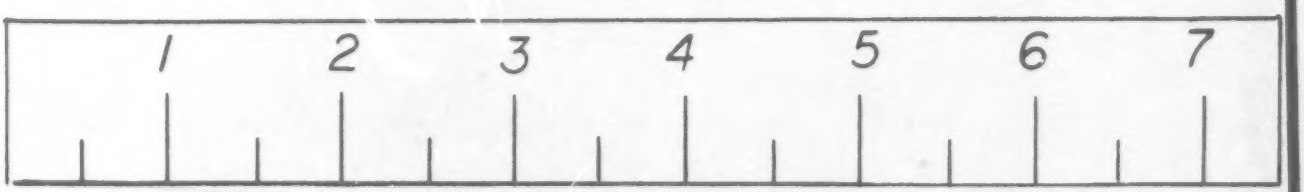


Estimate _____ Actual _____



Estimate _____
Actual _____

Estimate _____
Actual _____



P.O. 2.10.04.05

NAME: _____ CLASS: _____ DATE: _____

Directions: Make a mark where the inch worm will stop.

3 inches

2 inches

6 inches

4 inches

1 inch

5 inches

4 inches

2 inches

1 inch

264

P.O. 2.10.04.06

NAME: _____ CLASS: _____ DATE: _____

Directions: Put a red mark on the segments that are 1 inch long. Put a blue mark on the segments that are 1 foot long.

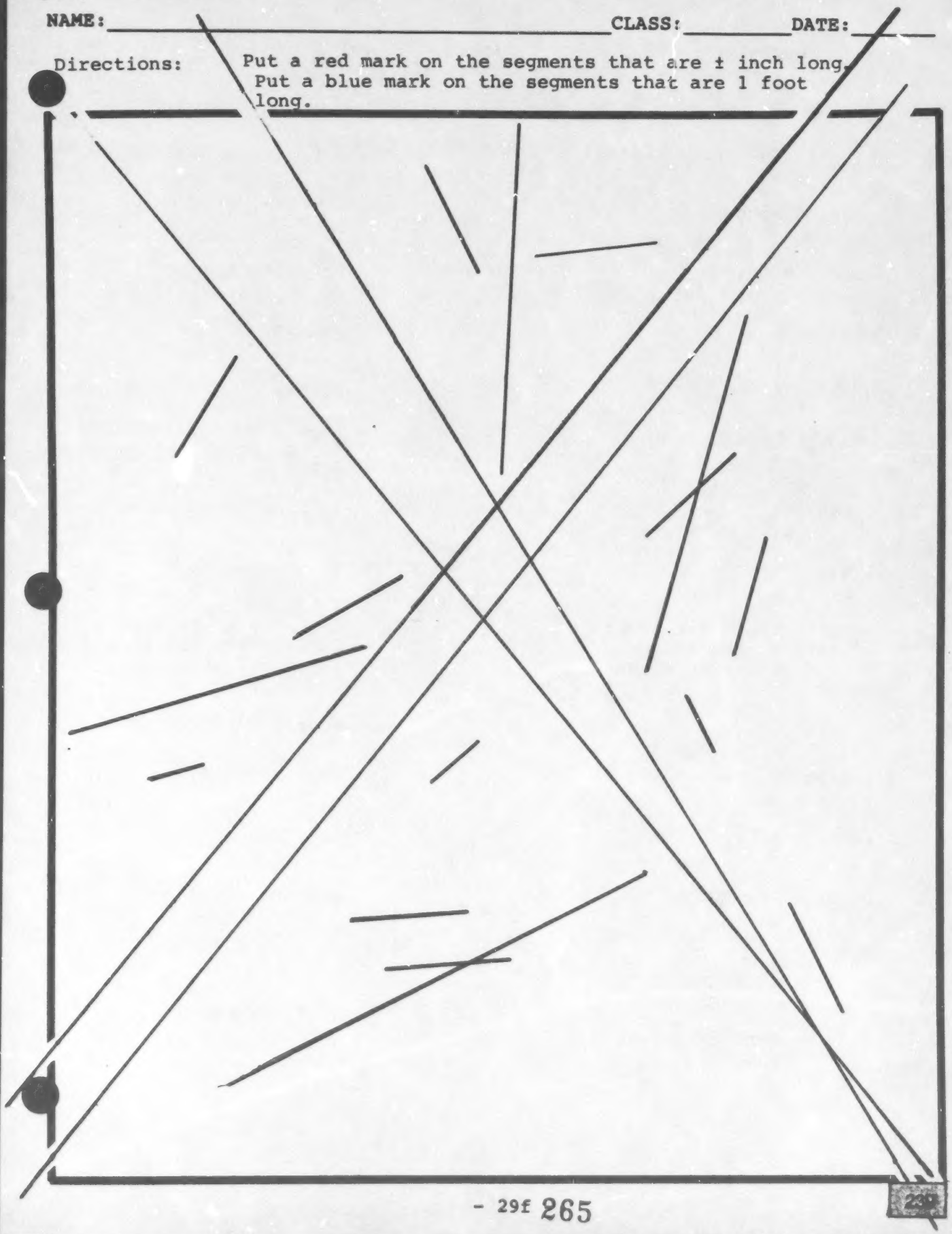
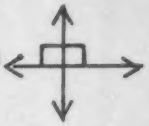
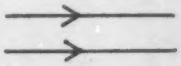


TABLE OF SYMBOLS

DEFINITIONS	SYMBOL	DEFINITIONS	SYMBOL
plus; add; positive	+	line	
minus; subtract; negative	-	ray	
plus or minus	+ or -	perpendicular lines	
times; multiply	· or X	parallel lines	
divide	÷	degree	°
divide	)	equals	=
square root	√	is not equal to	≠
cube root	$\sqrt[3]{\ }$	is less than	<
angle	∢	is greater than	>
between two numerals or letters at the end of a series or sequence; and so on	...	encloses a set when numbers are included: empty set when empty	{ }
		subset	⊂
triangle	△	intersection	∩
rectangle	▭	union; join	∪
parallelogram	▱	percent	%
circle	○	foot, minute	'
		inch, second	"
line segment (as $\overline{AB}$)	—		

METRIC TABLE

PREFIX	VALUE	LENGTH	CAPACITY	WEIGHT (MASS)
KILO	1000	kilometer* (km)	kiloliter (kl)	kilogram* (kg)
HECTO	100	hectometer (hm)	hectoliter (hl)	hectogram (hg)
DEKA	10	dekameter (dam)	dekaliter (dal)	dekagram (dag)
	1	meter* (m)	liter* (l)	gram* (g)
DECI	$\frac{1}{10}$ or .10	decimeter (dm)	deciliter (dl)	decigram (dg)
CENTI	$\frac{1}{100}$ or .01	centimeter* (cm)	centiliter (cl)	centigram (cg)
MILLI	$\frac{1}{1000}$ or .001	millimeter* (mm)	milliliter (ml)	milligram* (mg)

* most frequently used

BASIC CLASSROOM EQUIPMENT CHECKLIST

MATERIALS:

Abacus - Class size/individual. ____
Attribute blocks..... ____
Balance Beam..... ____
Calculators..... ____
Calendar - class size..... ____
Clock - large - class size..... ____
Clock - individual size..... ____
Clock - stamp..... ____
Coin stamps..... ____
Compass..... ____
Cubic counting blocks..... ____
Cuisenaire rods..... ____
Dominoes..... ____
Felt cut-outs..... ____
Flannel board..... ____
Flash cards..... ____
Fractional parts (assorted)..... ____
Geo boards..... ____
Geometric patterns..... ____
Hundred charts - class size/ind. ____
Laminating paper..... ____
Magnetic board..... ____
Magnetic discs..... ____
Measuring tools-English, Metric (rulers, scales, compasses, protractors, beakers, cups, spoons, thermometers)..... ____
Number lines - class/individual. ____
Numerals - tactile..... ____
Plastic discs..... ____
Play money..... ____
Powers of Ten..... ____
Protractor..... ____
SEE calculators..... ____
Scale..... ____
Screen (pull-down type)..... ____
Spinners..... ____
Squared place value material.... ____
Standard playing cards..... ____
Tangrams..... ____
Tens frame..... ____
Timers (1,2,3 minute)..... ____
Tokens (various sizes/colors)... ____
Trundle wheel..... ____
Unifix cubes..... ____
Unifix 100 board..... ____

SUPPLIES:

Adding machine tapes (for classroom/ind. number lines)..... ____
Chalk..... ____
Construction paper..... ____
Elastic bands..... ____

BASIC CLASSROOM EQUIPMENT CHECKLIST

SUPPLIES: cont'd

Envelopes (all sizes)..... ____
Erasers, board/individual..... ____
Felt pens (all sizes)..... ____
Ditto, Rexograph paper..... ____
Glue..... ____
Gram weights..... ____
Graph paper (1 cm, <, 1")..... ____
Grease pencils..... ____
Oak tag..... ____
Paper clips..... ____
Paste..... ____
Plastic discs..... ____
Pointer..... ____
Primary pencils..... ____
Rubber bands..... ____
Scissors - primary, left hand.. ____
Scotch tape..... ____
Spinner..... ____
String..... ____
Tape..... ____

COLLECTIBLES:

Beads and beans..... ____
Bottle caps..... ____
Buttons..... ____
Cardboard (all sizes)..... ____
Cereal boxes..... ____
Coffee cans..... ____
Detergent boxes, shoe boxes, meat trays, and plastic containers..... ____
Egg cartons..... ____
Felt for desk mats..... ____
Ice cream sticks..... ____
Juice containers..... ____
Macaroni..... ____
Magazines..... ____
Menus..... ____
Metrically measured cartons.... ____
Milk containers..... ____
Newspapers..... ____
Paper plates..... ____
Sand..... ____
Spools..... ____
String, yarn..... ____
Styrofoam..... ____
Tongue depressors..... ____
Wire hangers..... ____
Ziploc Bags..... ____